Self Diagnosis Supported model

SERVICE MANUAL

FE-2D CHASSIS

MODEL	COMMANDER	DEST	CHASSIS NO.	MODEL	COMMANDER	DEST	CHASSIS NO.
KD-28DX50U	RM-933	UK	SCC-Q52S-A	KD-32DX50U	RM-933	UK	SCC-Q52T-A

FD Trinitron

KV-28/32DX50

RM-933

TRINITRON ® COLOR TV

SONY®

TABLE OF CONTENTS

Section *Title* *Page*
Caution 3
Specifications 4
Connectors 5
Self Diagnostic Software 6

1. GENERAL

Automatically Tuning the TV 7
Switching between digital and analogue mode 7
Digital Text 7
Analogue Text 8
The Channel Index Menu 8
The Digital EPG Menu 9
The Info Menu 9
The Main Menu 10
Detail Set-up Menu 10
Using the TV Menu System 11
Manual Programme Preset Menu 11
Connecting other Equipment 12
Remote Control of Equipment 12
Specifications 13
Troubleshooting 13

2. DISASSEMBLY

2-1. Rear Cover Removal 14
2-2. Front Control Module Removal 14
2-3. Chassis Removal and Refitting 14
2-4. A Board Removal [Step 1] 15
2-5. A Board Removal [Step 2] 15
2-6. D3 Board Removal 15
2-7. F3 Board Removal 15
2-8. A1 Board Removal 16
2-9. Service Position 16
2-10. N Board Removal 16
2-11. Picture Tube Removal 17
Bottom Plates 18

3. SET-UP ADJUSTMENTS

3-1. Beam Landing 19
3-2. Convergence 20
3-3. Focus Adjustment 22
3-4. Screen (G2), White Balance 22

4. CIRCUIT ADJUSTMENTS

4-1. Electrical Adjustments 23
4-2. Test Mode 2 25

5. DIAGRAMS

Section *Title* *Page*
5-1. Block Diagrams (1) 26
Block Diagrams (2) 27
Block Diagrams (3) 28
5-2. Circuit Board Location 29
5-3. Schematic Diagrams and Printed Wiring Boards 29
* A Board PWB 31
* A Board Schematic 32
* A1 Board PWB 36
* A1 Board Schematic 37
* F7 Board PWB 39
* F7 Board Schematic 38
* B1 Board PWB 39
* B1 Board Schematic 40
* D3 Board PWB 39
* D3 Board Schematic 38
* F3 Board PWB 39
* F3 Board Schematic 38
* H7 Board PWB 39
* H7 Board Schematic 38
* H4 Board PWB 39
* H4 Board Schematic 40
* C Board PWB 42
* C Board Schematic 41
* D2 Board PWB 42
* D2 Board Schematic 41
* VM Board PWB 42
* VM Board Schematic 43

5-4. Semiconductors 44
5-5. IC Blocks 45

6. EXPLODED VIEWS

6-1. Chassis 46
6-2. Picture Tube 47

7. ELECTRICAL PARTS LIST 48

CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR THE CARBON PAINTED ON THE CRT, AFTER REMOVAL OF THE ANODE CAP.

WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE WORK TO AVOID POSSIBLE SHOCK HAZARD DUE TO LIVE CHASSIS, THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE POWER LINE.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARKED ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION

APRES AVOIR DECONNECTE LE CAP DE'LANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

ATTENTION !!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÁSSIS SOUS TENTION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÈ LORS DE TOUT DÈPANNAGE LE CHÁSSIS DE CE RÈCEPTEUR EST DIRECTMENT RACCORDÈ Á L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS Á LA SECURITÈ!!

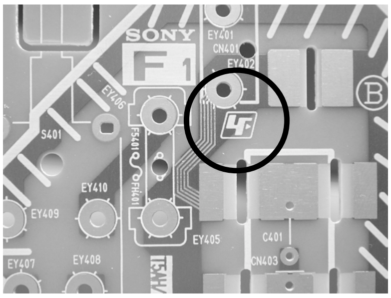
LES COMPOSANTS IDENTIFIÈS PAR UNE TRAME ET PAR UNE MARQUE ⚠ SUR LES SCHÈMAS DE PRINCIPE, LES VUES EXPLOSÈES ET LES LISTES DE PIECES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÈCURITÈ DU FONCTIONNEMENT, NE LES REMPLACER QUE PAR DES COMPSANTS SONY DONT LE NUMÈRO DE PIÈCE EST INDIQUÈ DANS LE PRÈSENT MANUEL OU DANS DES SUPPLÈMENTS PUBLIÈS PAR SONY.

CAUTION

Lead Free Soldered Boards

The circuit boards listed below [Table 1] used in these models may have been processed using Lead Free Solder. The boards are identified by the LF logo located close to the board designation e.g. F1, H1 etc [see examples]. The servicing of these boards requires special precautions to be taken as outlined below.

example 1



example 2

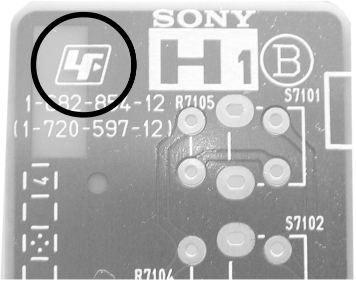


Table 1

Board	Function
B1	Y,U,V Switching
C	R,G,B Out
D2	Smart Mode Deflection
D3	4:3 Switching
F3	AC Input/Fuse
VM	Dynamic Focus & DQP

It is strongly recommended to use Lead Free Solder material in order to guarantee optimal quality of new solder joints. Lead Free Solder is available under the following part numbers :

Partnumber	Diameter	Remarks
7-640-005-19	0.3mm	0.25Kg
7-640-005-20	0.4mm	0.50Kg
7-640-005-21	0.5mm	0.50Kg
7-640-005-22	0.6mm	0.25Kg
7-640-005-23	0.8mm	1.00Kg
7-640-005-24	1.0mm	1.00Kg
7-640-005-25	1.2mm	1.00Kg
7-640-005-26	1.6mm	1.00Kg

Due to the higher melting point of Lead Free Solder the soldering iron tip temperature needs to be set to 370 degrees centigrade. This requires soldering equipment capable of accurate temperature control coupled with a good heat recovery characteristics.

For more information on the use of Lead Free Solder, please refer to *http://www.sony-training.com*

ITEM MODEL	Television System	Stereo System	Channel Coverage	Color System
U	I/DVB-T	NICAM Stereo	UHF : B21-B69	PAL NTSC3.58, NTSC4.43 (VIDEO IN) MPEG-2 MP@ML

Picture Tube	Flat Display FD Trinitron Approx 71 cm (28 inches) (Approx 66 cm picture measured diagonally) KV-28DX50U Approx 82 cm (32 inches) (Approx 76 cm picture measured diagonally) KV-32DX50U
Input/Output Terminals [REAR]	
1: 21-pin Euro connector (CENELEC standard)	Inputs for Audio and Video signals. Inputs for RGB. Outputs of TV Video and Audio signals.
2: 21-pin Euro connector	Inputs for Audio and Video signals. Inputs for S Video. Outputs of TV Video and Audio signals. (selectable)
Phono Jacks	Output Connectors variable for Audio Signals
Digital	Modem Jack PCMCIA
Input/Output Terminals [FRONT]	
Headphone jack	stereo mini jack
Audio inputs	phono jacks
Video inputs	phono jacks
S Video input	4 pin DIN

Sound output	
Right and Left speaker	2x14W (Music Power) 2x7W (RMS)
General Specifications	
Power Requirements	220 - 240V
Power Consumption	97W (KV-28DX50U) 97W (KV-32DX50U)
Dimensions	Approx 788x571x563mm (KV-28DX50U) Approx 886x620x592mm (KV-32DX50U)
Weight	Approx 45kg (KV-28DX50U) Approx 61kg (KV-32DX50U)
Supplied Accessories	RM-933 Remote Commander (1) IEC designated R6 battery (2) RF Lead
Other Features	Auto Noise Reduction,DQP & DF,Smartlink, MHEG,Two Tuners,Virtual Dolby.
Remote Control System : Infrared Control	
Power requirements	3V dc 2 batteries IEC designation R6 (size AA)

Design and specifications are subject to change without notice.

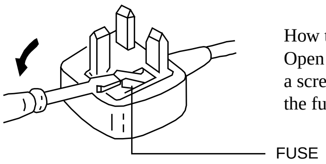
Model Name Item	KV-28DX50U	KV-32DX50U
Pal Comb	OFF	OFF
PIP	OFF	OFF
RGB Priority	ON	ON
Woofer Box	OFF	OFF
Scart 1	ON	ON
Scart 2	ON	ON
Front in (3)	ON	ON
Scart 4	OFF	OFF
Projector	OFF	OFF
Norm B/G	OFF	OFF
Norm I	ON	ON
Norm D/K	OFF	OFF
Norm AUS	OFF	OFF
Norm L	OFF	OFF
Norm SAT	OFF	OFF
Norm M	OFF	OFF
Teletext	ON	ON
Nicam Stereo	ON	ON

WARNING (UK Models only)

The flexible mains lead is supplied connected to a **B.S. 1363** fused plug having a fuse of **5 AMP** rating. Should the fuse need to be replaced, use a **5 AMP FUSE** approved by ASTA to **BS 1362**, ie one that carries the ASTA mark.

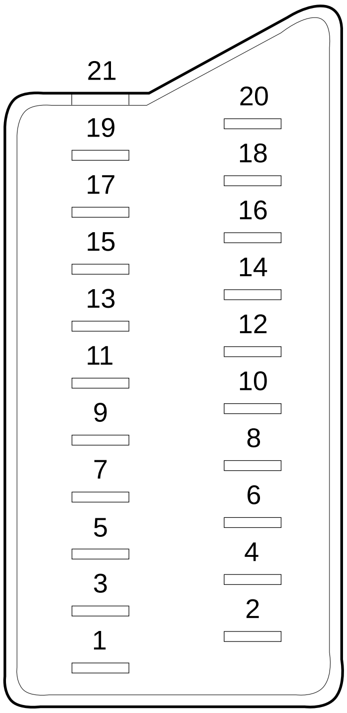
IF THE PLUG SUPPLIED WITH THIS APPLIANCE IS NOT SUITABLE FOR THE OUTLET SOCKETS IN YOUR HOME, IT SHOULD BE CUT OFF AND AN APPROPRIATE PLUG FITTED. THE PLUG SEVERED FROM THE MAINS LEAD MUST BE DESTROYED AS A PLUG WITH BARED WIRES IS DANGEROUS IF ENGAGED IN A LIVE SOCKET.

When an alternative type of plug is used, it should be fitted with a **5 AMP FUSE**, otherwise the circuit should be protected by a **5 AMP FUSE** at the distribution board.



How to replace the fuse.
Open the fuse compartment with a screwdriver blade and replace the fuse.

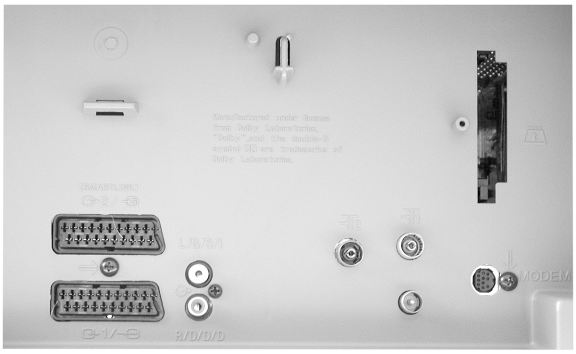
21 pin connector



Pin No	1	2	4	Signal	Signal level
1	○	○	○	Audio output B (right)	Standard level : 0.5V rms Output impedence : Less than 1kohm*
2	○	○	○	Audio output B (right)	Standard level : 0.5V rms Output impedence : More than 10kohm*
3	○	○	○	Audio output A (left)	Standard level : 0.5V rms Output impedence : Less than 1kohm*
4	○	○	○	Ground (audio)	
5	○	○	○	Ground (blue)	
6	○	○	○	Audio input A (left)	Standard level : 0.5V rms Output impedence : More than 10kohm*
7	○	●	●	Blue input	0.7 +/- 3dB, 75 ohms positive
8	○	○	○	Function select (AV control)	High state (9.5-12V) : Part mode Low state (0-2V) : TV mode Input impedence : More than 10K ohms Input capacitance : Less than 2nF
9	○	○	○	Ground (green)	
10	○	○	○	Open	
11	○	●	●	Green	Green signal : 0.7 +/- 3dB, 75 ohms, positive
12	○	○	○	Open	
13	○	○	○	Ground (red)	
14	○	○	○	Ground (blanking)	
15	○	–	–	Red input	0.7 +/- 3dB, 75 ohms, positive
	–	○	○	(S signal Chroma input)	0.3 +/- 3dB, 75 ohms, positive
16	○	●	●	Blanking input (Ys signal)	High state (1-3V) Low state (0-0.4V) Input impedence : 75 ohms
17	○	○	○	Ground (video output)	
18	○	○	○	Ground (video input)	
19	○	○	○	Video output	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
20	○	–	–	Video input	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
	–	○	○	Video input Y (S signal)	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
21	○	○	○	Common ground (plug, shield)	

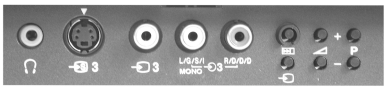
○ Connected ● Not Connected (open) * at 20Hz - 20kHz

Rear Connection Panel



Front Connection Panel

S-Video socket



S Video socket pin configuration		
Pin No	Signal	Signal Level
1	Ground	-
2	Ground	-
3	Y (S signal) input	1V+/- 3dB 75ohm, positive Sync. 0.3V -3 +10dB
4	C (S signal) input	0.3V+/- 3dB 75ohm, positive Sync.

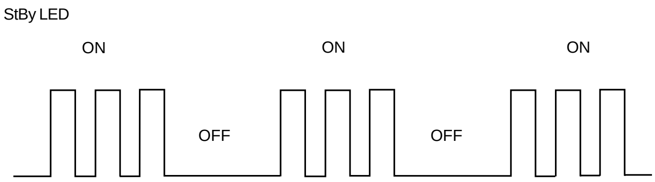
FE-2D SELF DIAGNOSTIC SOFTWARE

The identification of errors within the FE-2D chassis is triggered in one of two ways :- 1: Busy or 2: Device failure to respond to IIC. In the event of one of these situations arising the software will first try to release the bus if busy (Failure to do so will report with a continuous flashing LED) and then communicate with each device in turn to establish if a device is faulty. If a device is found to be faulty the relevant device number will be displayed through the LED (Series of flashes which must be counted) See table 1., non fatal errors are reported using this method.Each time the software detects an error it is stored within the NVM. See Table 2.

Table 1

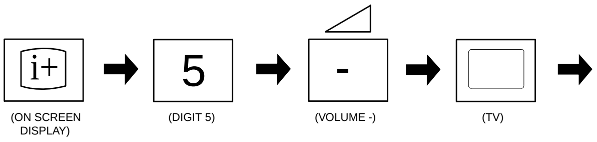
Error Message	LED Code
No error	00
Reserved	01
OCP (Over Current Protection)	02
Not Used	03
No Vertical Sync	04
IKR Error at power on	05
IIC bus clock and/or data lines low at power on	06
NVM no IIC bus acknowledge at power on	07
Not Used	08
Tuner no acknowledge at power on	09
Sound Processor Error	10
Jungle controller 8 volts error	11

Flash Timing Example : e.g. error number 3



How to enter into Table 2

1. Turn on the main power switch of the TV set and enter into the ‘Standby Mode’.
2. Press the following sequence of buttons on the Remote Commander.



3. The following table will be displayed indicating the error count.

Table 2

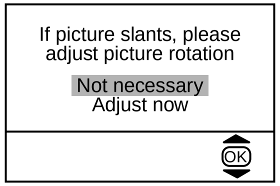
ERROR MENU			
E02:	OCP	(0, 255)	0
E03:	OVP N/A	(0, 255)	0
E04:	VSYNC	(0, 255)	0
E05:	IKR	(0, 255)	0
E06:	IIC	(0, 255)	0
E07:	NVM	(0, 255)	0
E08:	JUNGLE	(0, 255)	0
E09:	TUNER	(0, 255)	0
E10:	SOUNDP	(0, 255)	0
E11:	8V	(0, 255)	0
E12:	EMMA	(0, 255)	0
E13:	PORT EX	(0, 255)	0
E14:	RTC	(0, 255)	0
WORKING TIME			
HOURS			1
MINUTES			22

Note: To clear the error count data press ‘80’ on the Remote commander.

The operating instructions mentioned here are partial abstracts from the ‘Operating Instruction Manual’. The page numbers of the ‘Operating Instruction Manual’ remain as in the manual.

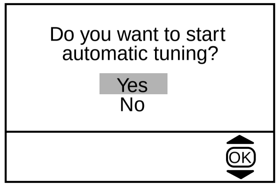
Automatically tuning the TV

The ‘Picture Rotation’ menu.



If picture slants, please adjust picture rotation

The ‘Autotune’ prompt.



Do you want to start automatic tuning?

1. When you switch on the TV for the first time a menu appears on the screen asking you to check if the picture is slanted. (Sometimes the Earth’s natural magnetism can cause the screen to look slanted.)

a) If no correction is required, press the ↑ or ↓ button to highlight ‘Not necessary’. Press the **OK** button to continue.

b) If some correction is required, press the ↑ or ↓ button to highlight ‘Adjust now’. Press the **OK** button to continue. Press the ↑ or ↓ button to correct the slant. Press the **OK** button to store.

2. The autotune prompt appears. Press the **OK** button to select ‘Yes’. The autotune procedure begins.

The digital autotune display appears on screen and the TV starts to search for all the available digital channels. This may take some time, please be patient and do not press any buttons on the TV or remote control.

If no digital or analogue channels are found, a message appears asking you to confirm that the aerial is connected correctly. Check all the aerial connections and press the **OK** button to start the autotune procedure again.

When the digital autotune is complete, the analogue autotune starts to search for all the available analogue channels.

Once all available digital and analogue channels have been stored, the TV returns to normal operation, displaying the digital channel stored on channel number 1. If no digital channels are found, the analogue channel stored on channel 1 is displayed.

The TV has now tuned in all the available channels

Switching between digital and analogue mode

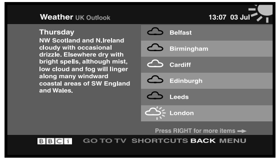
1. Press the **DIGITAL/▭** button to switch between digital and analogue mode.

In digital mode, an information banner appears briefly on screen when the channel is changed.

In analogue mode, the channel number appears in green lettering when the channel is changed.

Digital text

An example of digital text.



Weather UK Outlook 13:07 03 Jul

Thursday

NW Scotland and N.Ireland cloudy with occasional drizzle. Elsewhere dry with bright spells, although mist, low cloud and fog will linger along many windward coastal areas of SW England and Wales.

Many broadcasters now provide a digital text service. Digital text services offer all the familiar information that analogue (conventional) text services provide but with the look and feel of a graphically rich website.

The appearance, content and navigation methods of all digital text services are decided by the broadcaster. For example, digital text from the BBC may look different from digital text from ITV. Most of the digital text services currently available use simple navigation methods based on the following buttons:

To	Press
Load or exit digital text...	▤ button.
Move around the screen...	↑, ↓, ← or → buttons.
Select items on screen...	**OK** and **Numbered** buttons.
Access shortcuts...	**Coloured** buttons.

Viewing digital text

There are two ways to view digital text, either while watching a digital channel or by accessing a dedicated digital text channel.

a) Digital text from digital channels
(depending on availability of service)

This form of digital text is accessed the same way as analogue text.

1. Select a digital channel which provides a text service.

2. Press the ▤ button to access the digital text service.

3. Follow the on screen instructions.

b) Digital text from a dedicated digital text channel
(depending on availability of service)

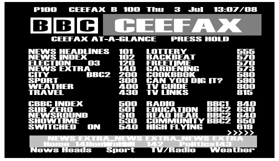
Some broadcasters provide a separate channel for accessing their digital text service.

1. Select a dedicated digital text channel.

2. Follow the on screen instructions.

Analogue text

An example of analogue text.



```
P100   CEEFAX B 100 Thu  3 Jul  13:07/08
BBC CEEFAX
    CEEFAX AT-A-GLANCE   PRESS HOLD

NEWS HEADLINES      101  LOTTERY            555
NEWS INDEX          102  BACKBEAT           570
ELECTION     03     120  FREETIME           570
NEWS EXTRA          140  GARDENING          573
CITY          BBC2  200  COOKBBOK           580
SPORT               300  CAN YOU DIG IT?    590
WEATHER             400  TV GUIDE           800
TRAVEL              430  TV LINKS           815

CBBC INDEX          500  RADIO        BBC1  840
SUB ZERO            501  EDUCATION    BBC2  630
NEWSROUND           510  READ HEAR    BBC2  640
SHOWTIME            530  COMMUNITY    BBC2  650
SWITCHED   ON       540  HIGH FLYING        619
                                         >>>>>
  NEWS EXTRA_NEWS EXTRA_NEWS EXTRA
News Heads   Sport    TV/Radio    Weather
```

Most analogue TV channels broadcast a text service. The index page (usually page 100) provides information on how to use the service. Please ensure that you are receiving a good signal, or some text errors may occur.

Viewing analogue text

1. Select an analogue channel that provides a text service.

2. Press the ▤ button to access the text service.

3.

To	Press
Select a page...	**Numbered** buttons. (Press the **PROG +/-** buttons to display the previous or next page).
Superimpose the text over the TV picture (mix mode)...	▤ button. Press again to exit the text service.
Hold a page...	⮌/⊞ button. Press again to cancel.
Reveal hidden information...	⊡/? button.

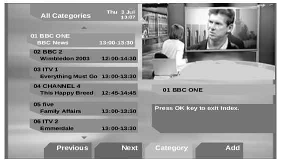
4. Press the **DIGITAL/▭** button to return to normal TV operation.

Fastext

Fastext allows you to access pages quickly and easily. When Fastext is available, four coloured items appear at the bottom of the text page. Press the corresponding **Coloured** button on the remote control to access the page.

The Channel Index menu

The 'Channel Index' menu.



All Categories Thu 3 Jul 13:07

01 BBC ONE
BBC News 13:00-13:30

02 BBC 2
Wimbledon 2003 12:00-14:30

03 ITV 1
Everything Must Go 13:00-13:30

04 CHANNEL 4
This Happy Breed 12:45-14:45

05 five
Family Affairs 13:00-13:30

06 ITV 2
Emmerdale 13:00-13:30

01 BBC ONE

Press OK key to exit Index.

*If you have set a Parental Control age limit in the Main Menu, and the programme exceeds that limit, you will be asked to enter your PIN before the preview is allowed. Programmes that exceed the age limit are identified by a ■ symbol.

Initially the PIN code is preset to 1234. Refer to 'PIN Code' on page 20 for more information.

The Channel Index menu provides a list of all the available digital channels, along with information about the programmes currently being broadcast. The current channel is previewed in the top right corner of the screen with it's channel name and number displayed below it.

The Channel Index menu is only available in digital mode.

1. With the TV in digital mode, press the **OK** button to display the Channel Index menu.

2.

To	Press
Move around the menu...	▲ and ▼ buttons.
Display the previous/next six channels in the list...	**RED** button (previous), **GREEN** button (next).
Preview a programme...	**OK** button while highlighting a programme*.

3. Press the **DIGITAL/▭** button to return to normal TV operation.

The Category pop-up list

The Category pop-up list allows you to display channels in the Channel Index menu by category.

The categories available include:

Favourite	Contains all the channels you have stored as a favourite (see below).
Choice	The TV will create this list based on the type of channels you watch the most.
Recent Prog.	Contains the last five channels watched.
All Categories	Contains all available channels.
News	Contains all news channels.

1. Press the **YELLOW** button whilst accessing the Channel Index menu.

2. Press the ▲ or ▼ button to highlight the required category.

3. Press the **OK** button. The Channel Index menu now only shows channels from the category selected. The category name is displayed at the top of the channel list.

Favourite channels

This feature allows you to create a list of your favourite channels. This list is displayed when the 'Favourite' category is selected in the Channel Index menu (see above).

To add a channel to the Favourite category

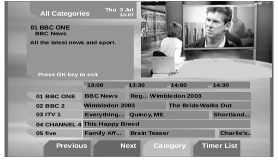
With the required channel highlighted in the Channel Index menu, press the **BLUE** button to add the channel to the Favourite list.

To remove a channel from the Favourite category

Access the Category pop-up list (see above). Use the ▲ or ▼ button to highlight the 'Favourite' category. Press the **OK** button to display the 'Favourite' category. Use the ▲ or ▼ button to highlight the channel you wish to remove from the Favourite list. Press the **BLUE** button to remove the channel.

The Digital Electronic Programme Guide (EPG)

The 'Digital EPG'.



01 BBC ONE
BBC News
All the latest news and sport.

	13:00	13:30	14:00	14:30
01 BBC ONE	BBC News	Reg... Wimbledon 2003		
02 BBC 2	Wimbledon 2003		The Bride Walks Out	
03 ITV 1	Everything...	Quincy, ME		Shortland...
04 CHANNEL 4	This Happy Breed			
05 five	Family Aff...	Brain Teaser		Charlie's..

The Digital Electronic Programme Guide allows you to:

a) view programme information for all digital channels,
b) sort programme information by category,
c) set reminders to have the TV automatically switch to a programme when it starts,
d) record programmes

The Digital Electronic Programme Guide is only available in digital mode.

1. With the TV in digital mode, press the ▤ button to display the Digital Electronic Programme Guide.

2.

To	Press
Move around the menu...	↑, ↓, ← and → buttons.
Display the previous/next five channels in the list...	**RED** button (previous), **GREEN** button (next).
Preview a programme...	**OK** button while highlighting a programme*.

4. Press the **DIGITAL/▭** button to return to normal TV operation.

The Category pop-up list

The Category pop-up list allows you to display channels in the Digital Electronic Programme Guide by category.

The categories available include:

Favourite	Contains all the channels you have stored as a favourite (see below).
Choice	The TV will create this list based on the type of channels you watch the most.
Recent Prog.	Contains the last five channels watched.
All Categories	Contains all available channels.
News	Contains all news channels.

1. Press the **YELLOW** button whilst accessing the Digital Electronic Programme Guide.

2. Press the ↑ or ↓ button to highlight the required category.

3. Press the **OK** button. The Digital Electronic Programme Guide now only shows channels from the category selected. The category name is displayed at the top of the channel list.

To add/remove a channel to/from the Favourite list

Refer to 'To add a channel to the Favourite category' and 'To remove a channel from the Favourite category' on the previous page.

Recording

1. With the Digital Electronic Programme Guide on screen, press the ↑, ↓, ← and → button to highlight the programme you wish to record.

2. Press the **OK** button to display the 'Timers' menu.

3. Press the **RED** button to set the TV and your VCR timers**.

*If you have set a Parental Control age limit in the Main Menu, and the programme exceeds that limit, you will be asked to enter your PIN before the preview is allowed. Programmes that exceed the age limit are identified by a ▪ symbol.

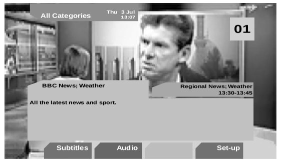
Initially the PIN code is preset to 1234. Refer to 'PIN Code' on page 20 for more information.

For Smartlink VCRs only. If your VCR does not have Smartlink a message will be displayed to inform you. Press the **RED button to set the TV timer. You will now have to manually set your VCR timer.

When a programme has been set to record, a solid green bar appears under the information box in the EPG for that programme.

The Info menu

The 'Info' menu.



BBC News; Weather
Regional News; Weather
13:30-13:45
All the latest news and sport.

The Info menu provides information on the programmes currently being shown and on future programmes. It also allows you to display digital subtitles and listen to the broadcast in a different language.

The Info menu is only available in digital mode.

1. With the TV in digital mode, press the ⓘ button to display the 'Info menu'.

2.

To	Press
Display information for future programmes...	→ button.
Return to information for current programmes...	← button.
Change the TV channel...	**Numbered** buttons.

3. Press the **DIGITAL/▭** button to return to normal TV operation.

The **Coloured** buttons give you access to further options:

RED button:	**Subtitles** (depending on availability) When pressed, a pop-up menu allows you to change the languages for the subtitles. Press the ↑ or ↓ button to select the language required, then press the **OK** button to confirm.
GREEN button:	**Audio** (depending on availability) When pressed, a pop-up menu allows you to select the language in which you wish to hear the broadcast. Press the ↑ or ↓ button to select the language required, then press the **OK** button to confirm.
YELLOW button:	**REC/Timers** Allows you to record a programme from the Info display, or set a programme to automatically appear on screen when it starts. Press the ← or → button to select future programmes from the Info display, then press the **YELLOW** button to display the 'Timers' pop-up menu. You can now choose from a)Record b)Wakeup or c)Manual **a) Record**** Highlight 'Record' and press **OK** to automatically set your VCR to record the selected programme (this will only work if your VCR has the Smartlink facility and is connected to the AV2 socket →2/→3 on the rear of this TV). **b) Wakeup**** Highlight 'Wakeup' and press **OK** if you wish the future programme you selected to appear on screen when transmission begins. **c) Manual***** Highlight 'Manual' and press **OK** if you wish the TV to output a channel to your VCR for recording. The display shown on the left appears. Press the ↑ or ↓ button to set the day of recording, then press the → button to move to the start time. Repeat this procedure to set the start and stop times and the channel number, then press the **OK** button to store and return to the Info menu. Press the ⓘ button to remove the Info menu from the screen. Unless you have a Smartlink VCR, you must now set the timer recording function of your VCR to switch on and off to correspond with the programme you have stored for recording.
BLUE button:	Press to display the Main Menu (see next page).

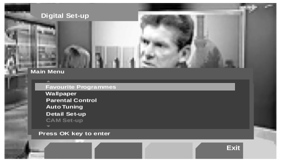
**After you have programmed a recording you can put the TV into it's standby mode, but do not switch off completely or the recording will be cancelled. If you put the TV into standby mode, the standby indicator on the front of the TV flashes green periodically to remind you a recording has been programmed. Once a programme has started recording, do not change channels or switch to analogue mode or the recording will be cancelled.

***The 'Manual' feature only works if you have connected your VCR to the AV2 socket →2/→3 on the rear of the TV.

The Main Menu

This menu contains features that allow you to customise the digital side of your TV. The ‘Main Menu’ is only available in digital mode.

The ‘Main’ menu.



1. With the TV in digital mode, press the ⓘ button to display the ‘Info menu’.

2. Press the **BLUE** button to access the ‘Main Menu’.

3.

To	Press
Highlight an option...	↑ and ↓ buttons.
Select a highlighted option...	**OK** button.
Alter the settings of a selected option...	↑, ↓, ← or → buttons.
Store settings/changes...	**OK** button.

4. Press the **DIGITAL/▭** button to return to normal TV operation.

Favourite Programme

This option allows you to store your favourite channels in a list for quick access.

To add a channel to the Favourite Programme list
With the ‘Favourite Programmes’ option highlighted, press the **OK** button to display the ‘Favourite Programmes’ menu. Press the ↑ or ↓ button to scroll through the list until the channel you wish to store as a favourite is highlighted. Press the **OK** button to confirm. A tick appears alongside the channel to indicate that it is now stored as a favourite. Repeat this procedure to store other favourite channels.

To remove a channel from the Favourite Programme list
Highlight the channel and press the **OK** button. The tick disappears.

To remove all channels from the Favourite Programme list
Press the **YELLOW** button.

Wallpaper

This option allows you to customise the background pattern for all digital menus.

With the ‘Wallpaper’ option highlighted, press the **OK** button to display the ‘Wallpaper’ menu. Press the ↑ or ↓ button to highlight the required wallpaper. Press the **OK** button to confirm.

Parental Control

This option allows you to set an age limit above which a PIN code is required before viewing is allowed.

With the ‘Parental Control’ option highlighted, press the **OK** button to display the ‘Parental Control’ menu. Enter your existing PIN code using the **Numbered** buttons*. Press the **OK** button to confirm. The age box now becomes active. Press the ↑ or ↓ button to highlight the required age limit. Press the **OK** button to confirm.

Auto Tuning

All the available digital channels were tuned in when the TV was first installed. This option allows you to repeat that process (e.g. to search for new channels that have been launched by broadcasters).

With the ‘Auto Tuning’ option highlighted, press the **OK** button to display the ‘Auto Tuning’ menu. Press the **RED** button to start the auto tuning process.

Detail Set-up

The ‘Detail Set-up’ menu is explained on page 20.

CA Set-up

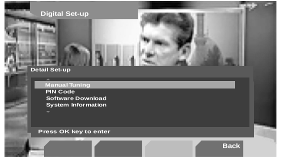
The ‘CA Set-up’ option is for future use only.

*Initially the PIN code is preset to 1234. Refer to ‘PIN Code’ on page 20 for details on how to change this.

Detail Set-up menu

This menu allows you to configure the digital side of your TV.

The ‘Detail Set-up’ menu.



1. With the TV in digital mode, press the **OK** button to display the Channel Index menu.

2.

To	Press
Highlight an option...	↑ and ↓ buttons.
Select a highlighted option...	**OK** button.
Alter the settings of a selected option...	↑, ↓, ← or → buttons.
Store settings/changes...	**OK** button.

3. Press the **DIGITAL/▭** button to return to normal TV operation.

Manual Tuning

This option allows you to tune digital channels one by one.

With the ‘Manual Tuning’ option highlighted, press the **OK** button to display the ‘Manual Tuning’ menu. Press the ↑ or ↓ button to highlight the channel number for your new channel. (Alternatively, press the **RED** or **GREEN** button to display the previous or next five channels in the list.) Press the **OK** button to display the ‘Manual Programme Search’ menu. Press the → button to highlight ‘Select Search’. Press the ↑ or ↓ button to start searching. All the available channels are displayed on the right side of the menu. Press the ↑ or ↓ button to highlight the required channel. Press the **OK** button to store.

Clearing a channel
With the ‘Manual Tuning’ option highlighted, press the **OK** button to display the ‘Manual Tuning’ menu. Press the ↑ or ↓ button to highlight the channel number you wish to clear. Press the **YELLOW** button. A message is displayed asking you to confirm. Press the **RED** button to clear the channel or press the **BLUE** button to cancel.

PIN Code

This option allows you to change your PIN code.

With the ‘PIN Code’ option highlighted, press the **OK** button to display the ‘PIN Code’ menu. Use the **Numbered** buttons to enter your existing PIN code. Initially the PIN code is preset to 1234. If you enter a wrong number, press the **RED** button to clear and start again. If you have forgotten your PIN code, please use 9999. This Pin Code will always be accepted. Press the **OK** button to confirm. Use the **Numbered** buttons to enter your new PIN code. Press the **OK** button to confirm. Enter your new PIN again to confirm. Press the **OK** button to change the PIN.

Software Download

This option allows you to receive software updates, free through your existing aerial (when issued). Sony recommends that this option is set to ‘On’ at all times. If you do not wish your software to be updated, set this option to ‘Off’.

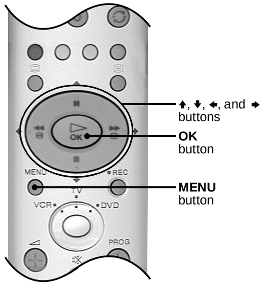
With the ‘Software Download’ option highlighted, press the **OK** button to confirm. Press the ↑ or ↓ button to select ‘On’ or ‘Off’. Press the **OK** button to confirm.

System Information

This is an information screen only and displays the current software versions and the signal strength.

With the ‘System Information’ option highlighted, press the **OK** button to display the ‘System Information’ screen.

Using the TV menu system



Use the following buttons to operate the TV menu system.

1.

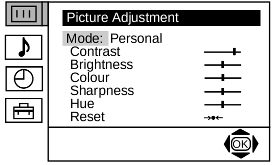
To	Press
Access the TV menu system...	**MENU** button.
Highlight an option...	↑ or ↓ buttons.
Enter the highlighted menu or option...	→ button.
Return to the last menu or option...	← button.
Alter the settings of a selected option...	↑, ↓, ← or → buttons.
Store settings/changes...	**OK** button.

2. Press the **MENU** button to return to normal TV operation.

The individual menus are explained on the following pages.

Picture Adjustment menu

The ‘Picture Adjustment’ menu.



Mode
This option allows you to choose between three picture mode settings, ‘Live’, ‘Movie’ and ‘Personal’. ‘Live’ and ‘Movie’ are preset and only the ‘Contrast’ setting can be adjusted. ‘Personal’ mode however, also allows you to adjust the ‘Brightness’, ‘Colour’ and ‘Sharpness’ settings.

With the ‘Mode’ option highlighted, press the → button to adjust. Press the ↑ or ↓ button to select the required mode. Press the **OK** button to confirm.

Contrast, Brightness, Colour, Sharpness, Hue
These options allow you to adjust the contrast, brightness, contrast, sharpness and hue.

‘Brightness’, ‘Colour’ and ‘Sharpness’ can only be adjusted when the picture ‘Mode’ is set to ‘Personal’. ‘Sharpness’ is not adjustable in digital mode. ‘Hue’ is only available when viewing an NTSC colour signal, e.g. USA video tapes.

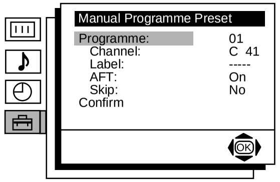
With the required option highlighted, press the → button to adjust. Press the ← or → button to set the level. Press the **OK** button to confirm.

Reset
This option resets all picture settings to the factory preset levels.

With the ‘Reset’ option highlighted, press the **OK** button to restore default picture settings.

Manual Programme Preset menu

The ‘Manual Programme Preset’ menu.



This menu allows you to tune in analogue channels, one by one.

1. With the ‘Manual Programme Preset’ option highlighted, press the **OK** button to display the ‘Manual Programme Preset’ menu.

2. Press the → button to highlight the programme number. Press the ↑ or ↓ button to select the channel number you wish to manually tune (if tuning a VCR, please select channel 0). Press the ← button to highlight ‘Programme’.

3. Press the ↓ button to highlight ‘Channel’. Press the → button to highlight the setting. You now need to tune the channel by one of the following methods:

a) If you do not know the channel number (frequency):
Press the ↑ or ↓ button to search for the next available channel. (When a channel has been found the search will stop, press the ↑ or ↓ button to continue searching.)

b) If you know the channel number (frequency):
Use the **Numbered** buttons to enter the channel number of the broadcast you want or your VCR channel number.

Once you have stored a channel, press the ← button to highlight ‘Channel’.

4. Press the ↓ button to highlight ‘Label’. This option allows you to assign a name of your choice (up to 5 letters or number). The name is displayed briefly on screen when the channel is selected.

Press the → button to highlight the setting. Press the ↑ or ↓ button until the letter or number you require appears in the display (select ‘-’ for a blank space). Press the → button to confirm. Repeat this until the name is complete. Press the ← button repeatedly to highlight ‘Label’.

5. Press the ↓ button to highlight ‘AFT’. Normally, fine tuning is performed automatically, However, this option allows you to adjust it manually if you feel that a slight tuning adjustment will improve the picture quality.

Press the → button to highlight the setting. Press the ↑ or ↓ button to adjust the fine tuning over a range of -15 to +15, or select ‘On’ for automatic fine tuning. Press the ← button to highlight ‘AFT’.

6. Press the ↓ button to highlight ‘Skip’. This option allows you to skip unused analogue channels when selecting channels with the **PROG +/-** buttons. (You can still select a skipped channel using the **Numbered** buttons on the remote control.)

Press the → button the setting. Press the ↑ or ↓ button to select ‘Yes’ or ‘No’. Press the ← button to highlight ‘Skip’.

7. Press the ↓ button to highlight ‘Confirm’. Press the **OK** button to store any changes.

Connecting other equipment to the TV

A wide range of equipment can be connected to the TV through the front and rear sockets. Most equipment can be connected to any of the TV sockets. Refer to the instruction manual supplied with your equipment to determine the best TV socket to use. This TV supports the following inputs:

TV Sockets	Socket type(s)	Inputs supported
⇄1/⇥	Scart	RGB, Audio/Video.
⇄2/⇥S	Scart	S-Video, Audio/Video, Smartlink*.
⇥3 and ⇥S3	Phono (x2), 4 pin DIN	Audio/S-Video. (audio via ⇥3 sockets, S-Video via ⇥S3 socket)
⇥3 and ⇥3	Phono (x3)	Audio/Video. (audio via ⇥3 sockets, video via ⇥3 socket)

*Smartlink is a direct link between the TV and a compatible VCR or DVD recorder. Ensure that your VCR/DVD recorder is connected to the scart socket labelled ⇄2/⇥S, using a fully wired 21 pin scart lead. For more information on Smartlink, refer to the instruction manual supplied with your Smartlink VCR/DVD recorder.

Viewing pictures from a connected VCR

If you have used a fully wired 21-pin scart lead to connect the VCR:
Refer to ‘Viewing pictures from equipment connected to the rear sockets’, below.

If you have not used a fully wired 21-pin scart lead to connect the VCR:
You will need to find the video channel:

1. Insert a pre-recorded tape into the VCR and press the ‘PLAY’ button.

2. **If you inserted a pre-recorded tape and pressed ‘PLAY’ during the autotune process, as instructed on page 6:**

With the TV in analogue mode, press the **PROG +/-** buttons until the picture from the pre-recorded tape is displayed on the TV screen.

In future, with the TV in analogue mode, press the **Numbered** buttons to directly select the video channel.

If you wish to move your video channel, refer to the ‘Programme Sorting’ on page 23.

If you did not insert a pre-recorded tape and press ‘PLAY’ during the autotune process, as instructed on page 6:

You will need to manually tune in the VCR signal (ideally to channel 0).

Insert a pre-recorded tape into the VCR and press the ‘PLAY’ button. Refer to the ‘Manual Programme Preset menu’ section of this instruction manual to manually tune in the VCR signal.

After manually tuning the VCR signal and with the TV in analogue mode, press the **Numbered** buttons to directly select the video channel.

Viewing pictures from equipment connected to the rear sockets

1. Switch on/press ‘PLAY’ on the connected equipment. The picture (if any) from the equipment appears on the TV screen.

If the picture does not automatically appear press the ⇥/⊕ button repeatedly until the picture is displayed on the TV screen.

2. Press the **DIGITAL/▭** button to return to normal TV operation.

Viewing pictures from equipment connected to the front sockets

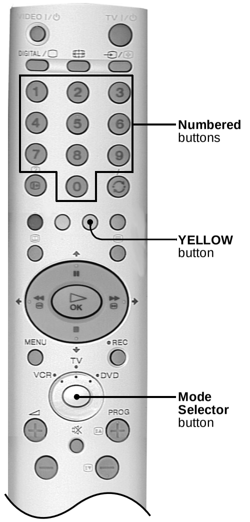
1. Press the ⇥/⊕ button repeatedly until the ⇥3 symbol appears on the TV screen.

2. Switch on/press ‘PLAY’ on the connected equipment. The picture (if any) from the equipment appears on the TV screen.

3. Press the **DIGITAL/▭** button to return to normal TV operation.

Remote control of other equipment

**The brand codes you set may be lost if weak batteries are not replaced immediately. Should this happen, replace the batteries and re-enter the required codes. A small label has been attached to the battery holder for you to make a note of your brand codes.



The remote control supplied with your TV automatically operates the basic functions of Sony DVD players and most Sony VCRs. The remote control can also operate DVD players and VCRs made by other manufacturers, provided that it is first programmed to match the particular brand of your VCR or DVD player**.

Programming the remote control

1. Find the three digit code for your brand from the list below.

2. **If programming the remote control to operate a DVD player:**
Press the **Mode Selector** button repeatedly until the green DVD light illuminates.

If programming the remote control to operate a VCR:
Press the **Mode Selector** button repeatedly until the green VCR light illuminates.

3. With the green light illuminated, press and hold down the **YELLOW** button for approximately six seconds, until the light starts to flash.

4. Use the **Numbered** buttons to enter the three digit code for your brand. Once a correct code has been entered, the green VCR, TV and DVD lights illuminate together momentarily.

5. Turn on your VCR or DVD player and check that the remote control operates the basic functions (refer to ‘Controlling a DVD player’, ‘Controlling a VCR’ on the next page for details). If not, repeat steps 2-4 and enter the next three digit number for your brand.

6. Press the **Mode Selector** button repeatedly until the green TV light illuminates.

DVD Brand List		VCR Brand List	
Brand	**Code**	**Brand**	**Code**
SONY	001	SONY (VHS)	301, 302, 303, 308, 309
AIWA	021	SONY (BETA)	303, 307, 310
DENON	018, 027, 020, 002	SONY (DV)	304, 305, 306
GRUNDIG	009, 028, 023, 024, 016, 003	AIWA	325, 331, 351
HITACHI	025, 026, 015, 004	AKAI	326, 329, 330
JVC	006, 017	DAEWOO	342, 343
KENWOOD	008	GRUNDIG	358, 355, 360 361, 320, 351
LG	015, 014	HITACHI	327, 333, 334
LOEWE	009, 028, 023, 024, 016, 003	JVC	314, 315, 322, 344, 352, 353, 354, 348, 349
MATSUI	013, 016	LG	332, 338
ONKYO	022	LOEWE	358, 355, 360 361, 320, 351
PANASONIC	018, 027, 020, 002	MATSUI	356, 357
PHILIPS	009, 028, 023, 024, 016, 003	ORION	328
PIONEER	004	PANASONIC	321, 323
SAMSUNG	011, 014	PHILIPS	311, 312, 313, 316, 317, 318, 358, 359
SANYO	007	SAMSUNG	339, 340, 341, 345
SHARP	019, 027	SANYO	335, 336
THOMSON	012	SHARP	324
TOSHIBA	003	THOMSON	319, 350
YAMAHA	018, 027, 020, 002	TOSHIBA	337

Specifications

TV System	I/DVB-T	
Colour System	PAL NTSC 3.58, 4.43 (only Video In) MPEG-2 MP@ML	
Channel Coverage	UHF:	B21-B69
Picture Tube	KD-28DX50: FD Trinitron WIDE Approx. 71cm (28inches) KD-32DX50: FD Trinitron WIDE Approx. 82cm (32inches)	
Sound Output	Left/Right:	2x14W (music power), 2x7W (RMS)
Power Consumption	KD-28DX50: 97W KD-32DX50: 97W	
Dimensions (w x h x d)	KD-28DX50: Approx. 788 x 571 x 563 mm KD-32DX50: Approx. 886 x 620 x 592 mm	
Weight	KD-28DX50: Approx. 45kg KD-32DX50: Approx. 61kg	
Rear Terminals	⇥1/⇤	21-pin Euro connector (CENELEC standard) including audio/video input, RGB input, TV audio/video output.
	⇥2/⇤S	21-pin Euro connector (CENELEC standard) including audio/video input, S-VIDEO input, selectable audio/video output.
	1	RF In (Digital)
	2	RF In (Analogue)
		RF Out
	L/G/S/I R/D/D/D	Audio output - phono jacks.
		PCMCIA (for future use only).
	MODEM	MODEM jack (for service only).
Front Terminals	∩	Headphone jack - minijack stereo.
	⇥S3	S-Video input - 4 pin DIN
	⇥3	Video input - phono jack.
	⇥3	Audio input - phono jack.
Supplied Accessories	RM-933 remote control (1) IEC designated size AA (R03) battery (2) RF Lead.	

Design and specification are subject to change without notice.

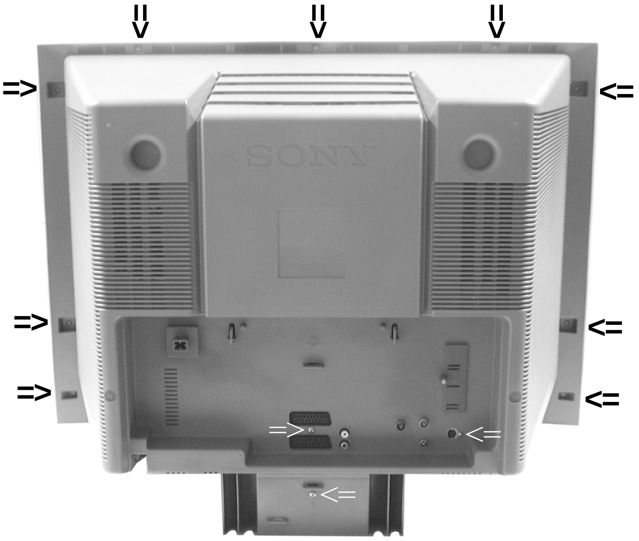
Troubleshooting

Here are some simple solutions to problems which may affect the picture and sound.

Problem	Cause	Solution
No picture, no sound.	• Power off. • TV in standby. • Aerial disconnected.	• Plug in the TV. • If the ⏻ indicator is lit, press the TV I/⏻ button on the remote control. • Press the ① button on the front of the TV. • Check aerial connection.
Poor or no picture (screen is dark), good sound.	• Low picture settings.	• Access the ‘Picture Adjustment’ menu and adjust the ‘Brightness’, ‘Colour’ and ‘Contrast’ settings. Refer to page 21.
No picture on any channel after digital tuning.	• No digital transmissions in your area. • Weak signal. • Unsuitable aerial.	• Tune in all available analogue channels. Refer to ‘Manual Programme Preset’ on page 24. Contact a local installer to find out when digital transmissions begin in your area. • Ensure aerial/satellite dish is correctly aligned to transmitter. • Ensure aerial is plugged directly into the TV (not through other equipment). • Upgrade to a higher gain aerial. • Upgrade to a higher gain aerial.
Some channels are blank.	• Scrambled/Subscription only channel. • Channel not being transmitted. • Channel used only for data (no picture or sound).	• Subscribe to the pay-per-view service. • Contact the broadcaster for transmission details
Standby indicator flashing.	• Digital programme set for ‘Timer Record’ (regular flash). • Fault (irregular flashing).	• Refer to ‘The Info menu’ on page 18. • Do not open the cabinet, refer to qualified personnel. • Contact your nearest SONY Service Centre.
Good picture, no sound	• Low or muted volume	• Press the ◿ + button on the remote control. • If 🔇 is displayed, press the 🔇 button on the remote control.
No colour on colour programmes.	• Low colour level settings.	• Access the ‘Picture Adjustment’ menu and adjust the ‘Colour’ setting. Refer to page 21.
Remote control does not work.	• Batteries low. • Wrong mode selected	• Replace batteries. • Press the Mode Selector button repeatedly to select TV mode.
Distorted picture when changing programmes or selecting text.	• Connected equipment switched on.	• Switch off external equipment (VCR, DVD player etc.)

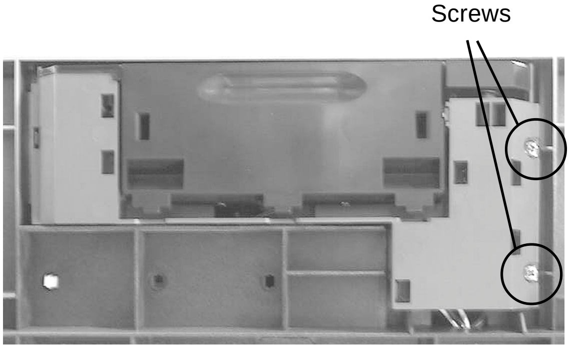
- **If you continue to have these problems, have your TV serviced by qualified personnel or contact the SONY UK Digital HelpLine on 0870 600 1717.**
- **NEVER open the casing yourself.**

2-1. Rear Cover Removal



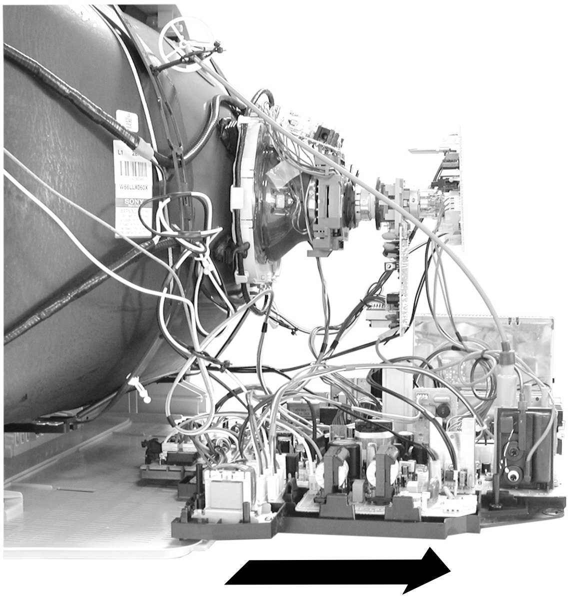
Remove the rear cover fixing screws indicated and pull the rear cover carefully backwards.

2-2. Front Control Module Removal

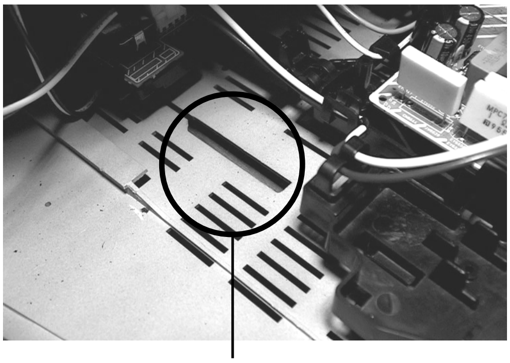


Remove the two screws fixing the user control module to the front underside of the set. The control module drops down to allow access to the boards.

2-3. Chassis Removal and Refitting

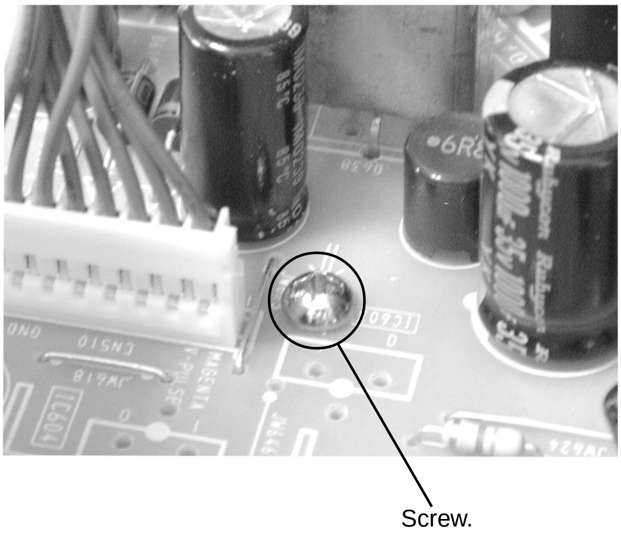


To remove lift the main bracket rear slightly and slide the chassis away from the beznet. Ensure that the interconnecting leads are released from their purse locks to prevent damage being caused.



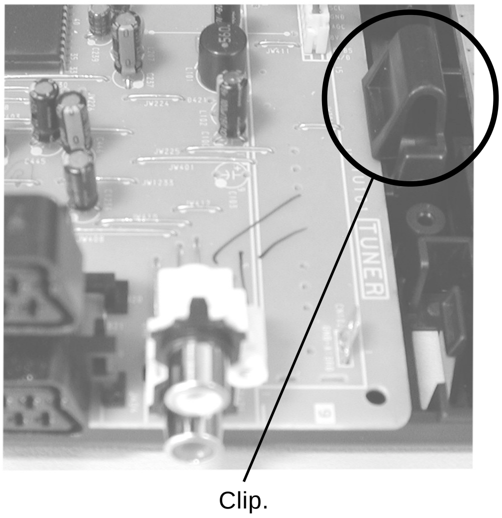
When refitting the chassis ensure that the main bracket is located in the beznet guide slots before sliding the chassis forwards. Refit the interconnecting leads in their respective purse locks.

2-4. A Board Removal [Step 1]



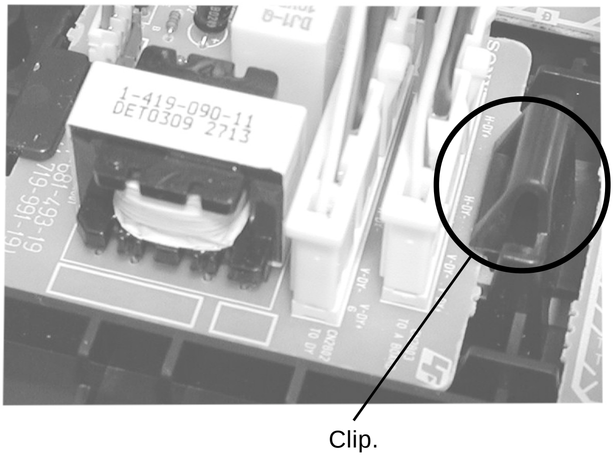
Remove the 3 screws securing the PWB to the main bracket. 1 can be seen in the photo above and the other 2 are either side of the FBT assembly.

2-5. A Board Removal [Step 2]



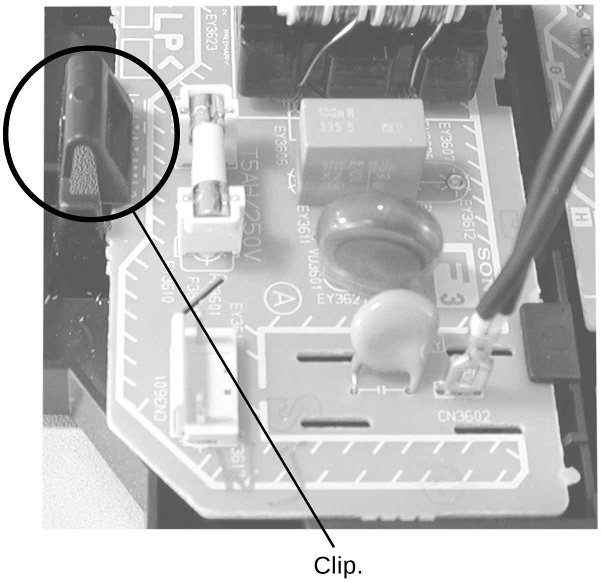
Release the 5 securing clips located around the side of the chassis and slide the PWB clear of the bracket.

2-6. D3 Board Removal



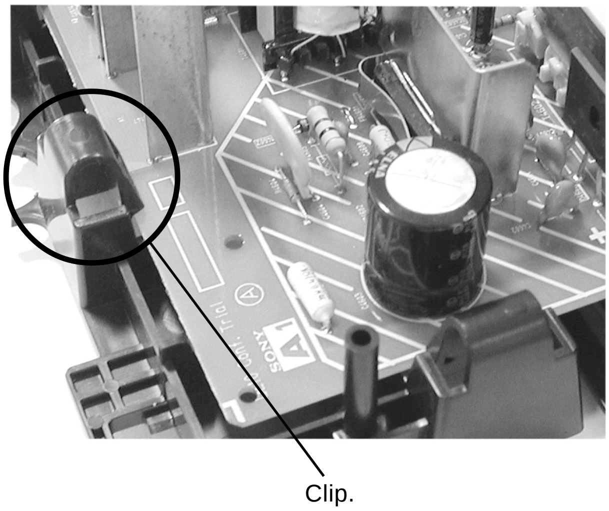
Release the securing clip circled and slide the PWB clear of the bracket.

2-7. F3 Board Removal



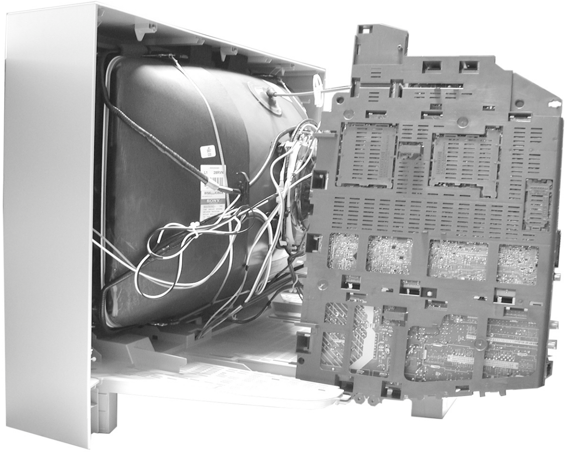
Release the 2 securing clips located along the side of the chassis and slide the PWB clear of the bracket.

2-8. A1 Board Removal



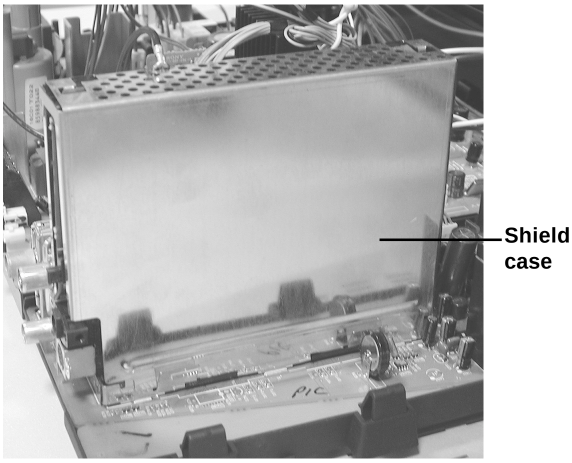
Release the 4 securing clips located around the side of the chassis and slide the PWB clear of the bracket.

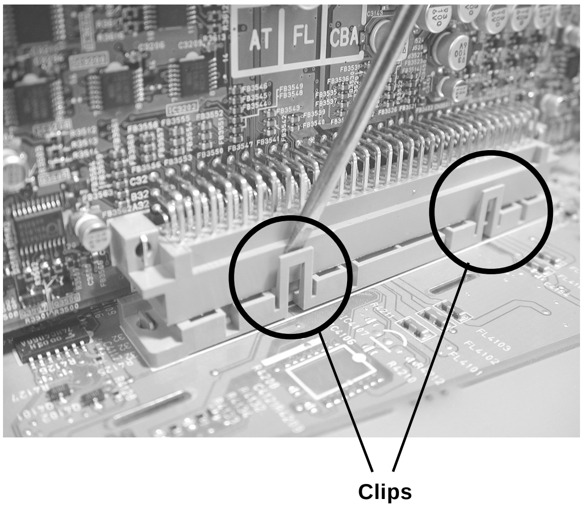
2-9. Service Position



Position the chassis as indicated to access the solder side of the PWB’s. To gain access to the A Board follow the instructions on page 18. [Removal and Replacement of the main bracket bottom plates].

2-10. N Board Removal



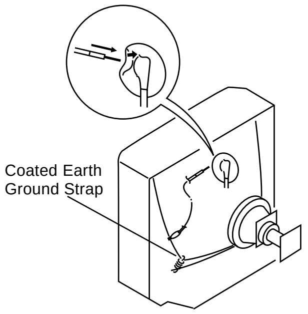


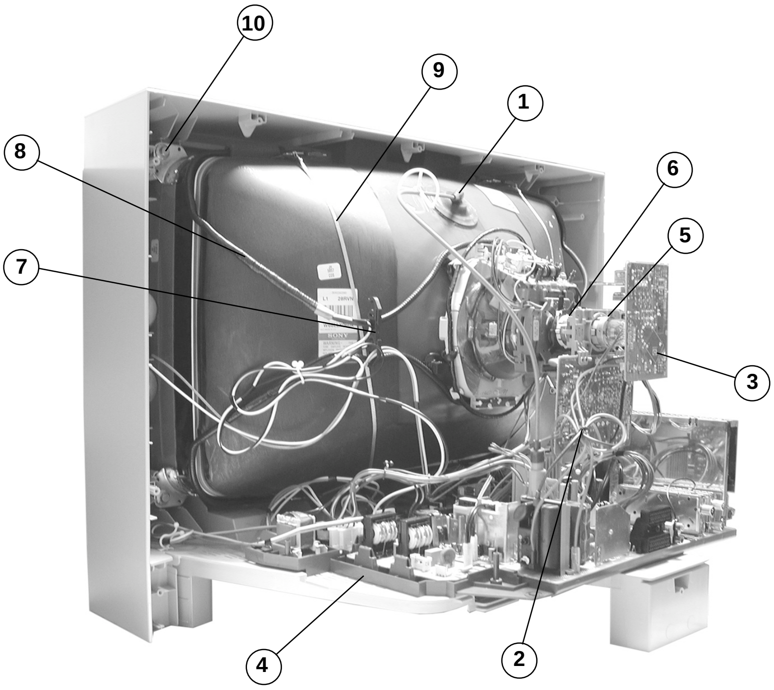
Remove the shield case by pulling vertically until it is clear of the N Board. Release the N board socket retaining clips, circled, by gently prising them with a screwdriver and carefully lift the N Board vertically.

2-11. Picture Tube Removal

WARNING:
BEFORE REMOVING THE ANODE CAP

High voltage remains in the CRT even after the power is disconnected. To avoid electric shock, discharge CRT ***before*** attempting to remove the anode cap. Short between anode and CRT coated earth ground strap.

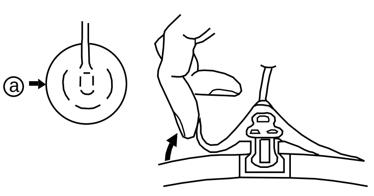




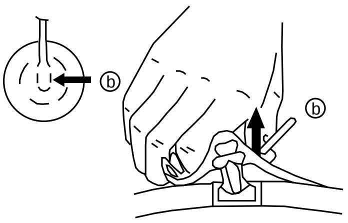
1. Discharge the anode of the CRT and remove the anode cap.
2. Unplug all interconnecting leads from the Deflection yoke, neck assy, degaussing coils and CRT grounding strap.
3. Remove the C Board from the CRT.
4. Remove the chassis assembly.
5. Loosen the Neck assembly fixing screw and remove.
6. Loosen the Deflection yoke fixing screw and remove.
7. Place the set with the CRT face down on a cushion and remove the Degaussing Coil holders.
8. Remove the Degaussing Coils.
9. Remove the CRT grounding strap and spring tentioners.
10. Unscrew the four CRT fixing screws [located on each CRT corner] and remove the CRT.
    [Take care not to handle the CRT by the neck.]

Removal of the Anode-Cap

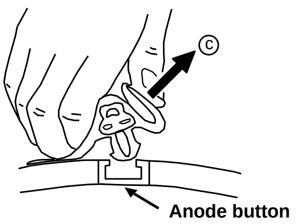
*** REMOVING PROCEDURES.**



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ



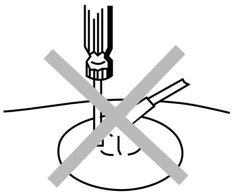
② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ

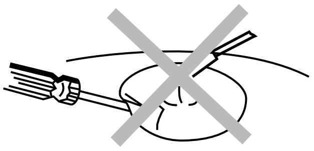


③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ⓒ

How to handle the Anode-Cap

1. To prevent damaging the surface of the anode-cap do not use sharp materials.
2. Do not apply too great a pressure on the rubber, as this may cause damage to the anode connector.
3. A metal fitting called a shatter hook terminal is fitted inside the rubber cap.
4. Do not turn the rubber foot over excessively, this may cause damage if the shatter hook sticks out.



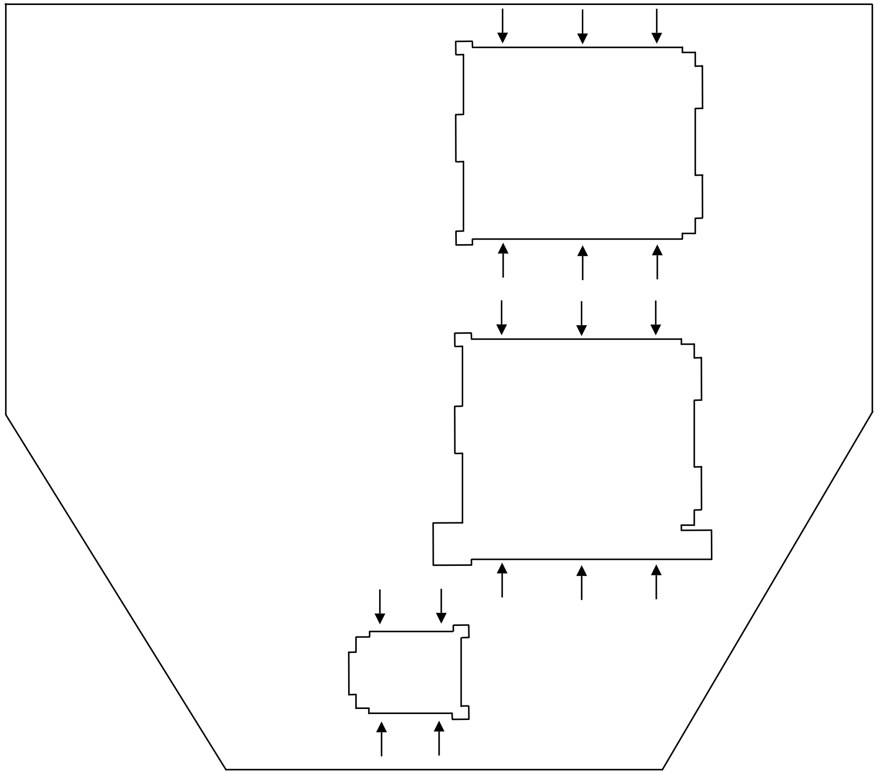


REMOVAL AND REPLACEMENT OF THE MAIN-BRACKET BOTTOM PLATES.

(1) REMOVING THE PLATES

In the event of servicing being required to the solder side of the A Board printed wiring board, the bottom plates fitted to the main chassis bracket require to be removed.
This is performed by cutting the gates with a sharp wire cutter at the locations indicated by the arrows.

Note : There are 3 plates fitted to the main bracket.
Only remove the necessary plate to gain access to the printed wiring board.

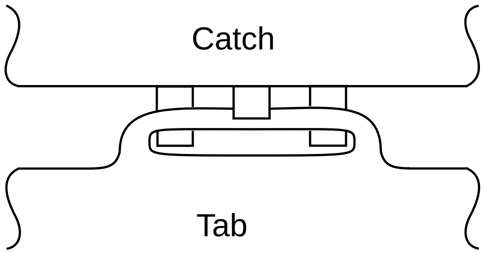


⚠ **For safety reasons, on no account should the plates be removed and not refitted after servicing.**

(2) REFITTING THE PLATES

Because the plates differ in size it is important that the correct plates are refitted in their original location.

Please note that the plates need to be rotated 180 degrees from their cut position to allow the tabs to be fitted into their catch positions.



SECTION 3 SET-UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there are specific instructions to the contrary, carry out these adjustments with the rated power supply.
- Unless there are specific instructions to the contrary, set the controls and switches to the following settings :

Contrast .... 80% [or remote control normal]

Brightness 50%

Carry out the adjustments in the following order :

3-1. Beam Landing.
3-2. Convergence.
3-3. Focus.
3-4. White Balance.

Note : Test equipment required.
1. Color bar/pattern generator.
2. Degausser.
3. Oscilloscope.
4. Digital multimeter.

Preparation:

1. In order to reduce the influence of geomagnetism on the set's picture tube, face it in an easterly or westerly direction.
2. Switch on the set's power and degauss with the degausser.

3-1. Beam Landing

1. Input an all white signal from the pattern generator. Set the Contrast and Brightness to normal.
2. Set the pattern generator raster signal to Red.
3. Move the deflection yoke forward and adjust with the purity control so that the Red is at the centre and the Blue and Green take up equally sized areas on each side of the screen. [See Fig.3-1 - 3-3].
4. Move the deflection yoke backwards and adjust so that the entire screen becomes Red. [See Fig.3-1]
5. Switch the raster signal to Blue, then to Green and verify the condition.
6. When the position of the deflection yoke has been determined, fasten the deflection yoke with the screws.
7. If the beam does not land correctly in all the corners, use a magnet to correct it. [See Fig.3-4]

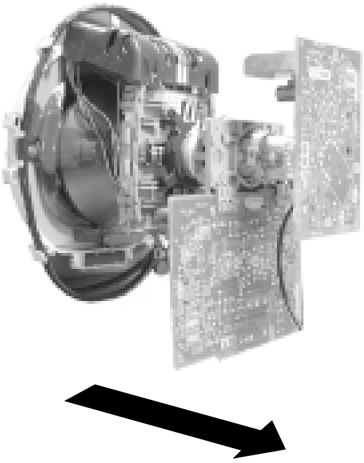


Fig. 3-1.

Caution :

High voltages are present on the Deflection yoke terminals - take care when handling the Deflection yoke whilst carrying out adjustments.

Fig. 3-2.

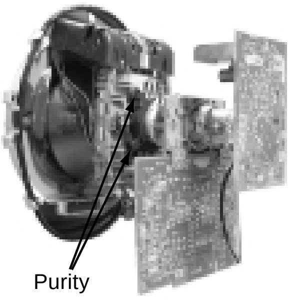
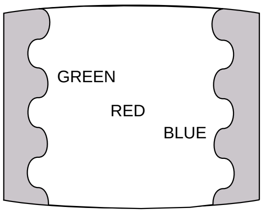


Fig. 3-3.



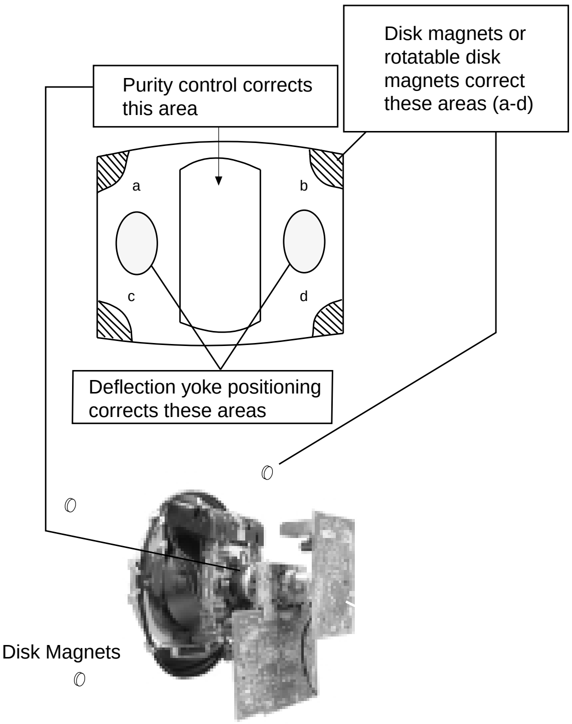

Purity control corrects this area
Disk magnets or rotatable disk magnets correct these areas (a-d)
a
b
c
d
Deflection yoke positioning corrects these areas
Disk Magnets

Fig.3-4

3-2. Convergence

Preparation:

- Before starting this adjustment, adjust the focus, horizontal size and vertical size.
- Minimize the Brightness setting.
- Input a dot pattern from the pattern generator.

Horizontal and Vertical Static Convergence

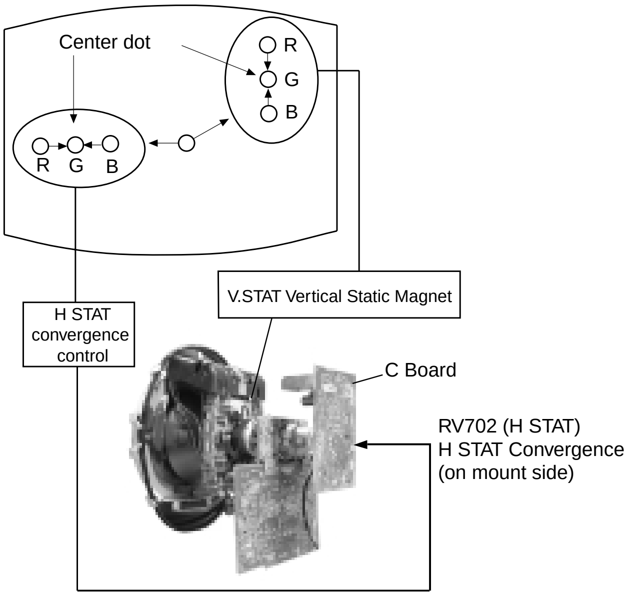
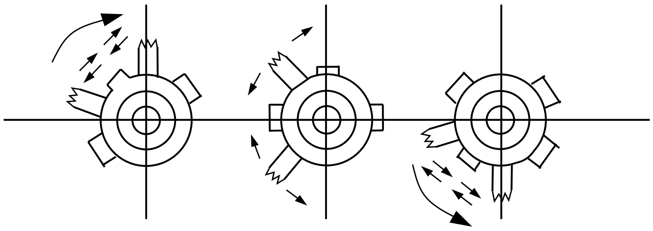

Center dot
R
G
B
R G B
V.STAT Vertical Static Magnet
H STAT convergence control
C Board
RV702 (H STAT)
H STAT Convergence
(on mount side)

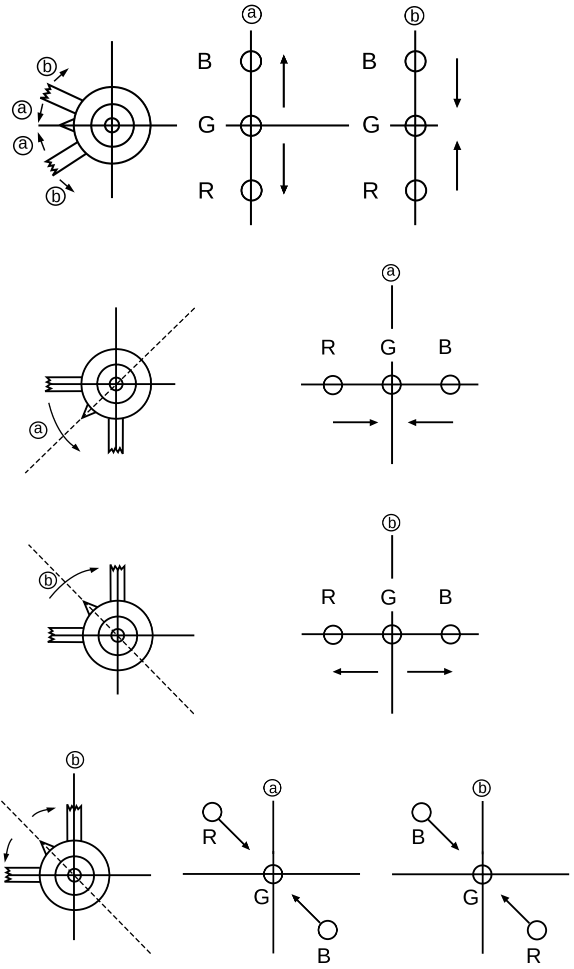
Fig.3-5

1. [Moving horizontally], adjust the H.STAT control so that the Red, Green and Blue points are on top of each other at the centre of the screen.
2. [Moving vertically], adjust the V.STAT magnet so that the Red, Green and Blue points are on top of each other at the centre of the screen.
3. If the H.STAT variable resistor is unable to bring the Red, Green and Blue points together at the centre of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V.STAT magnet in the manner indicated below.
   [In this case, the H.STAT variable resistor and the V.STAT magnet influence each other].

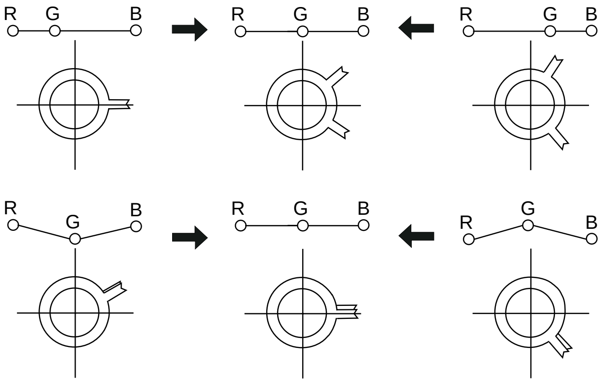
- Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.



4. If the V.STAT magnet is moved in the direction of the (a) and (b) arrows, the Red, Green and Blue points move as indicated below.



Operation of the BMC (Hexapole) magnet.


R G B
R G B
R G B
R G B
R G B
R G B

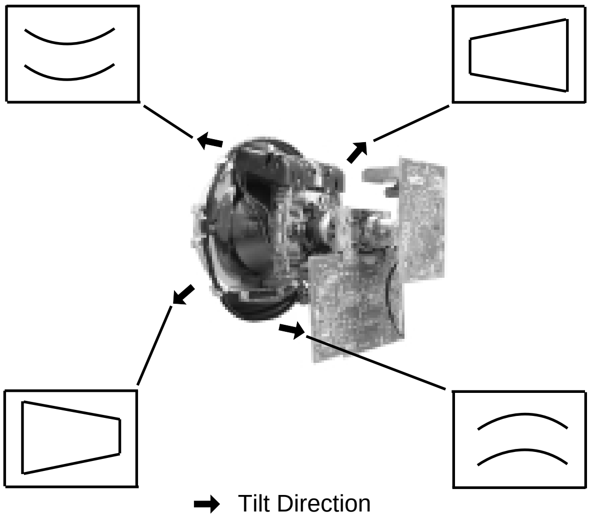
The movement of the magnets interact with each other and so the respective dot position should be monitored while carrying out this adjustment.
Use the H.STAT VR to adjust the Red, Green and Blue dots so that they coincide at the centre of the screen
(by moving the dots in the horizontal direction).

Geometry Adjustment.

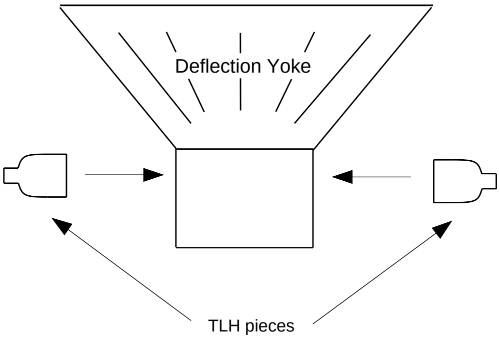
Preparation:

Before starting this adjustment, adjust the horizontal and vertical static convergence.

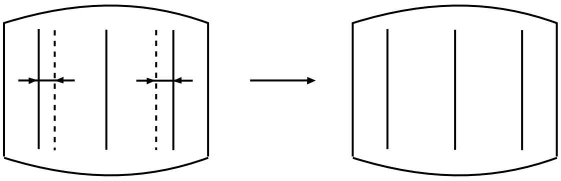
1. Remove the deflection yoke spacer.
2. Tilt the deflection yoke as indicated in the figure below and optimise the geometry.
   Tilting the DY Up and Down will balance the upper and lower pin adjustment.
   Tilting the DY Left and Right will balance the H-Trap adjustment.
3. Re-install the deflection yoke spacer.


➡ Tilt Direction

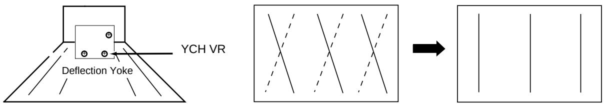
HTIL Adjustment


Deflection Yoke
TLH pieces

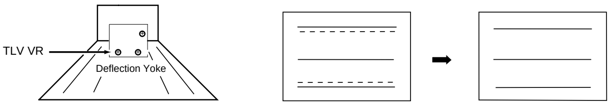
HTIL correction can be performed by adding a TLH correction assembly to the Deflection yoke.



YCH Adjustment

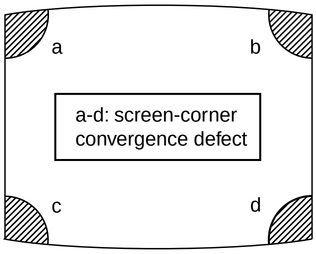

YCH VR
Deflection Yoke

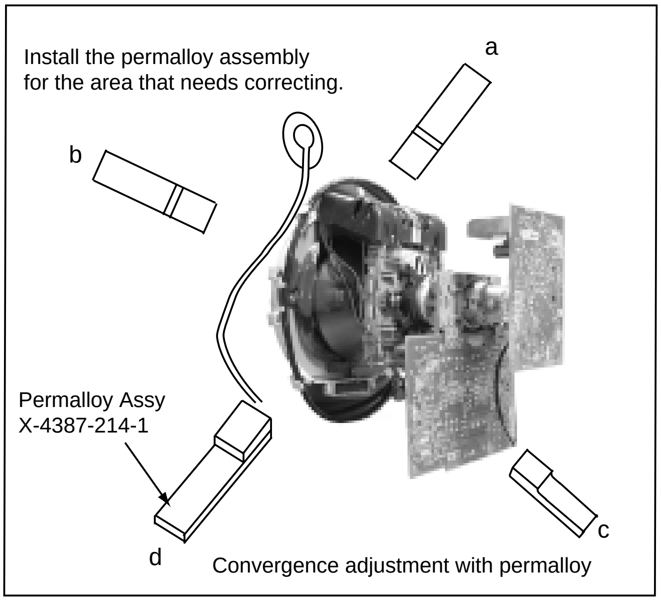
TLV Adjustment


TLV VR
Deflection Yoke

Screen Corner Convergence

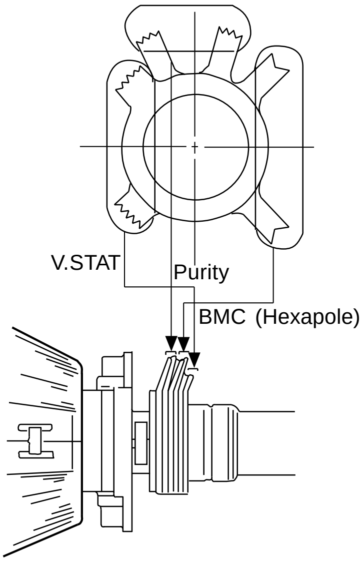
If you are unable to adjust the corner convergence properly, this can be corrected with the use of permalloy magnets.


a
b
a-d: screen-corner convergence defect
c
d


Install the permalloy assembly for the area that needs correcting.
a
b
Permalloy Assy X-4387-214-1
c
d

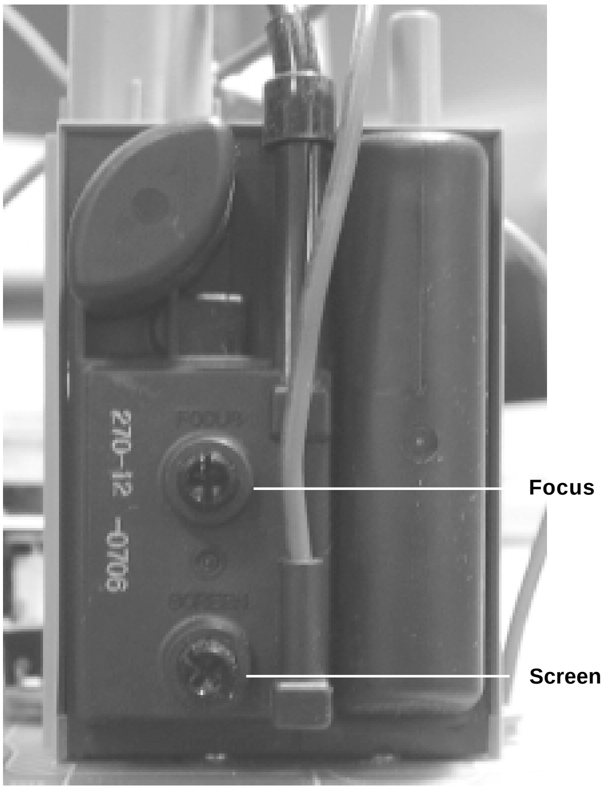
Convergence adjustment with permalloy

Layout of each control



3-3. Focus Adjustment

1. Receive a television broadcast signal.
2. Normalize the picture setting.
3. Adjust the focus control located on the flyback transformer to obtain the best focus at the centre of the screen.
   Bring only the centre area of the screen into focus, the magenta-ring appears on the screen. In this case, adjust the focus to optimize the screen uniformly.



3-4. Screen (G2), White Balance

[Adjustment in the service mode using the remote commander]

G2 adjustment

1. Input a dot signal from the pattern generator.
2. Set the Picture, Brightness and Colour to minimum.
3. Apply 165V DC from an external power supply to the R, G and B cathodes of the CRT.
4. Whilst watching the picture, adjust the G2 control [SCREEN] located on the flyback transformer to the point just before the flyback return lines disappear.

White balance adjustment for TV mode

1. Input an all-white signal from the pattern generator.
2. Program the Remote Commander for operation in Service Mode. [See Page 23].
3. Enter into the ‘Service Mode’ by pressing ‘VIDEO’ button twice and ‘MENU’ on the Service Commander.
4. Select ‘Service’ from the on screen menu display and press ‘Right Arrow’.
5. The ‘Service’ menu will appear on the screen.[See Page 23]
6. Set the ‘Contrast’ to MAX.
7. Set the ‘R-Drive’ to 50.
8. Adjust the ‘G-Drive’ and the ‘B-Drive’ so that the white balance becomes optimum.
9. Press the ‘OK’ button to write the data for each item.
10. Set the ‘Contrast’ to MIN.
11. Set the ‘R-Cutoff’ to 29.
12. Adjust the ‘G-Cutoff’, and the ‘B-Cutoff’ with the left and right buttons on the remote commander so that the white balance becomes optimum.
13. Press the ‘OK’ button to write the data for each item.

SECTION 4 CIRCUIT ADJUSTMENTS

4-1. Electrical Adjustments

Service adjustments to this model can be performed using the supplied remote Commander RM-933.

Programming the Remote Commander for Operation in Service Mode

STOP
MENU
REC
TV
VCR
DVD
PROGR

1. Press the VCR/TV/DVD button until the TV LED lights.

2. Press and hold the yellow button for approx. 5 seconds until the TV LED flashes quickly.

3. Press 99999. All three LED’s should light.
   The remote commander is now set to Service Mode.

4. To return the remote commander to normal operation mode repeat steps 1. and 2. then press 00000. All three LED’s should light.
   The remote commander is now set to normal mode.

Setting the TV into Service Mode

1. Program the remote commander for operation in Service Mode as described above.

2. Turn on the TV main power switch.

3. Press the video standby button on the remote commander twice.
   ‘TT __’ will appear in the upper right corner of the screen.
   Other status information will also be displayed.

4. Press ‘MENU’ on the remote commander to obtain the following menu on the screen.

```
Geometry
Service
Design
Status
Sound
IF Adjust
Error menu

FE-2 Digital v3.17
Factory data     00h    38h
MSP Device : MSP3411G
```

5. Move to the corresponding adjustment item using the up or down arrow buttons on the Remote Commander.
6. Press the right arrow button to enter into the required menu item.
7. Press the ‘Menu’ button on the Remote Commander to quit the Service Mode when all adjustments have been completed.

• **Note :**

· After carrying out the service adjustments, to prevent the customer accessing the ‘Service Menu’ switch the TV set OFF and then ON.

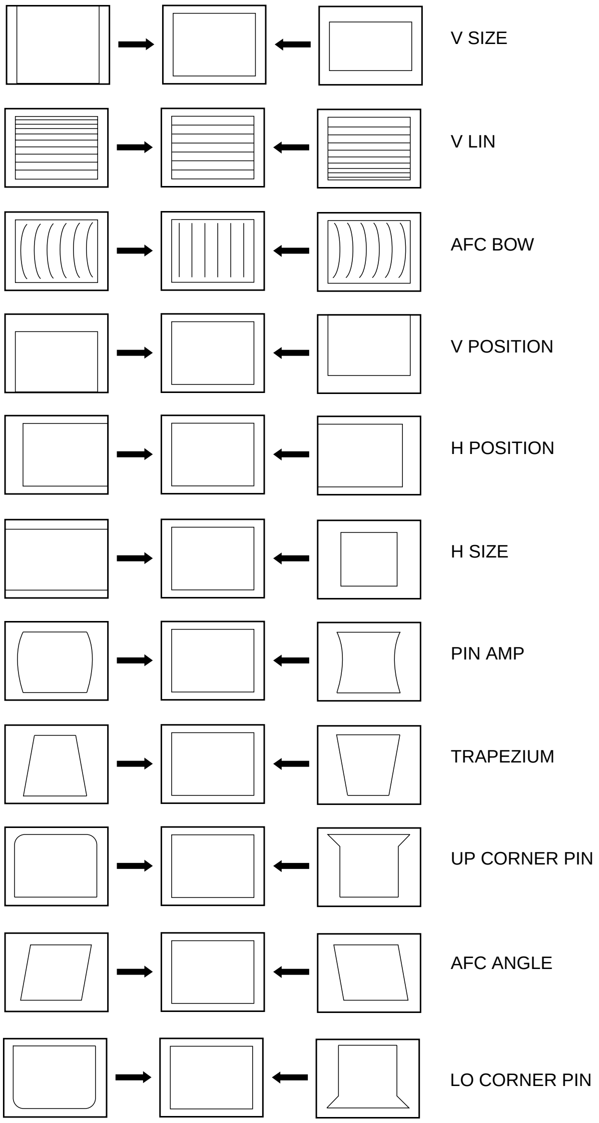
SERVICE		
Offset-R	(0, 63)	Adj
Offset-G	(0, 63)	Adj
R-Drive	(0, 63)	31
G-Drive	(0, 63)	Adj
B-Drive	(0, 63)	Adj
Peak-Freq	(0, 3)	0
Luma-Delay	(0, 15)	8
SC0	(0, 3)	3
White-Peak	(0, 15)	15
Subcont	(0, 15)	8
Subright	(0, 63)	30
Subcol	(0, 63)	Adj
Subsharp	(0, 63)	25
Cutoff Br.	(0, 63)	31
Br OSD	(0, 15)	10
Br TXT	(0, 15)	7

GEOMETRY		
V-Linearity	(0, 63)	Adj
V-Scroll	(0, 63)	32
Left-HBlk	(0, 15)	10
Right-HBlk	(0, 15)	7
V-Angle	(0, 63)	Adj
V-Bow	(0, 63)	Adj
H-Centre	(0, 63)	Adj
H-Size	(0, 63)	Adj
Pin-Amp	(0, 63)	Adj
U-Corner-Pin	(0, 63)	Adj
L-Corner-Pin	(0, 63)	Adj
Pin Phase	(0, 63)	Adj
V-Slope	(0, 63)	40
V-Size	(0, 63)	Adj
S-Correction	(0, 63)	Adj
V-Centre	(0, 63)	Adj
V-Zoom	(0, 63)	27
Magenta	(0, 63)	31

IF ADJUST		
AGC Adjust	(-16, +15)	+0
Automute		1
Audio Gain		0
L Gating		0

Deflection System Adjustment

1. Program the Remote Commander for operation in Service Mode. [See Page 23] and enter into the ‘Geometry’ service menu.
2. Select and adjust each item in order to obtain the optimum image.



GEOMETRY

V-Linearity	(0, 63)	Adj
V-Scroll	(0, 63)	32
Left-HBlk	(0, 15)	10
Right-HBlk	(0, 15)	7
V-Angle	(0, 63)	Adj
V-Bow	(0, 63)	Adj
H-Centre	(0, 63)	Adj
H-Size	(0, 63)	Adj
Pin-Amp	(0, 63)	Adj
U-Corner-Pin	(0, 63)	Adj
L-Corner-Pin	(0, 63)	Adj
Pin Phase	(0, 63)	Adj
V-Slope	(0, 63)	40
V-Size	(0, 63)	Adj
S-Correction	(0, 63)	Adj
V-Centre	(0, 63)	Adj
V-Zoom	(0, 63)	27
Magenta	(0, 63)	31

Sub Brightness Adjustment

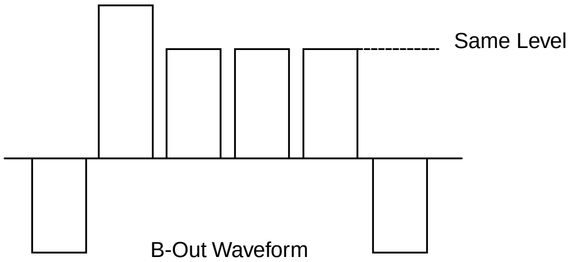
1. Input a Monoscope pattern.
2. Program the Remote Commander for operation in Service Mode. [See Page 23].
3. Press ‘VIDEO’ ‘VIDEO’ 13 on the Remote Commander.
4. Adjust the ‘Sub-Brightness’ data so that there is barely a difference between the 0 IRE and 10 IRE signal levels.

Sub Contrast Adjustment

1. Input a video signal that contains a small 100% white area on a black background.
2. Connect an digital voltmeter to Pin 10 of J701 [C Board].
3. Program the Remote Commander for operation in Service Mode. [See Page 23].
4. Adjust the Sub-Contrast [Using ‘VIDEO’ ‘VIDEO’ ‘11’] to obtain a voltage of 105 +/- 5V.

Sub Colour Adjustment

1. Receive a PAL colour bar signal.
2. Connect an oscilloscope to Pin 5 of CN003 [A Board].
3. Program the Remote Commander for operation in Service Mode. [See Page 23].
4. Adjust the ‘Sub Colour’ [Using ‘VIDEO’ ‘VIDEO’ ‘12’] so that the Cyan, Magenta and Blue colour bars are of equal levels as indicated below.



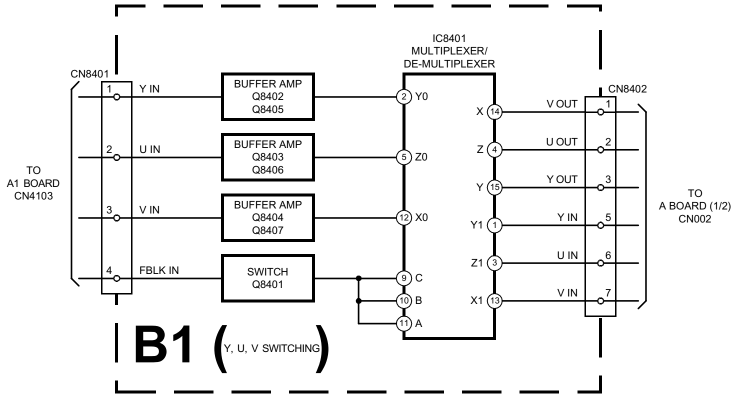
B-Out Waveform

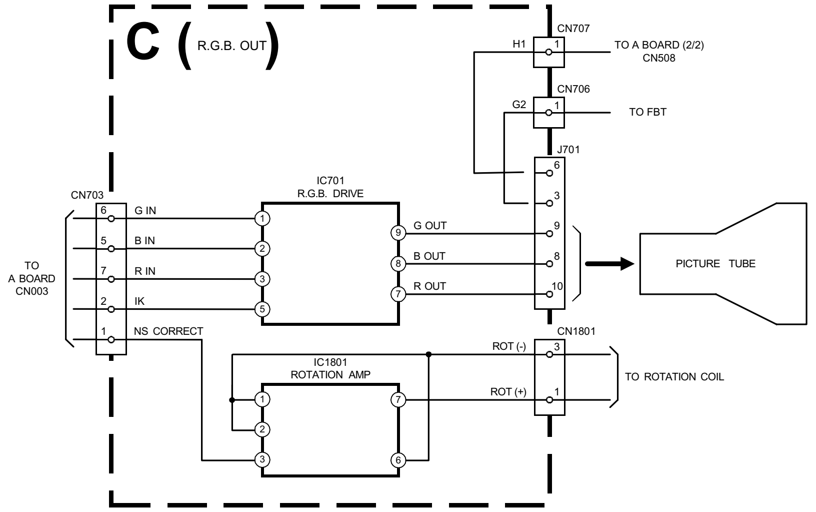
4-2. TEST MODE 2:

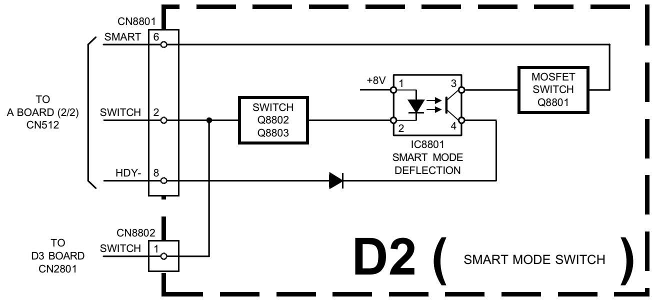
Test Mode 2 is available by programming the Remote Commander for operation in Service Mode [As shown on Page 23] then pressing the ‘VIDEO’ button twice, OSD ‘TT’ appears. The functions described below are available by selecting the two numbers. To release the ‘Test mode 2’, press 00, 10, 20 ... twice or switch the TV set into Stand-by mode. In ‘TT Menu’ mode, it is possible to remove the Menu from the screen by pressing the Speaker Off button once. Pressing the Speaker OFF button a second time will cause the Menu to reappear. The function is kept even when the menu is not displayed on screen !!.

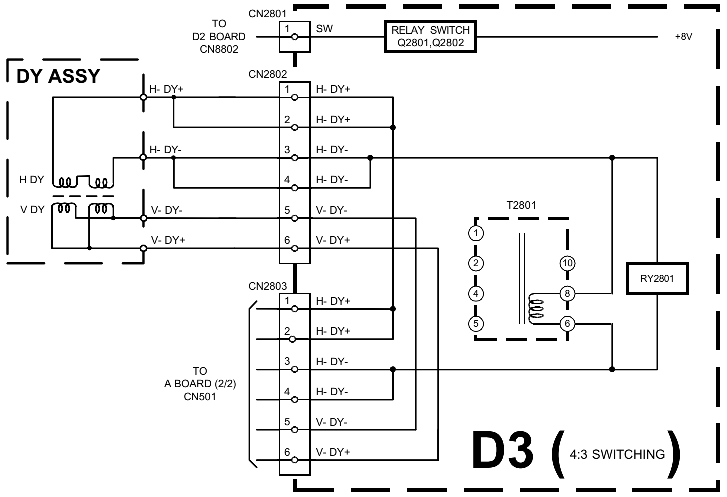
00	'TT' mode off
01	Picture maximum
02	Picture minimum
03	Set speaker/headphone Volume to 35%
04	Set speaker/headphone Volume to 50%
05	Set speaker/headphone Volume to 65%
06	Set speaker/headphone Volume to 80%
07	Ageing mode
08	Shipping Condition
11	Sub picture adjustment
12	Sub colour adjustment
13	Sub Brightness adjustment
14	Text H Position adjustment
15	Rotation Coil Test
16	Picture level 50%
19	Factory Mode Enable/Disable
21	Destination ADEKR
22	Destination BL
23	Destination ADEKR
24	Destination U
25	Destination ADEKR
26	Destination BL
27	Destination ADEKR
28	Destination ADEKR
31	Auto Shutoff Enable/Disable
36	Velocity Modulation (VM) OFF/ON test
41	Re-initialise NVM
43	Select Dual A sound
44	Select Dual B sound
45	Select Mono sound
46	Select Stereo sound
48	Set NVM as non virgin
49	Set NVM as virgin
53	FM Overmodulation Enable/Disable
55	Tuner selection (SONY/ALPS)
59	Select Model 3 Scarts + PIP or 2 Scarts
68	Enable/Disable X26 countermeasure (N problem)
73	Enable Zweiton D/K2 system (6.5/6.74)
74	Enable Zweiton D/K3 system (6.5/5.74)
78	Balance full right
79	Balance full left
87	Local keys test
99	Display Error and Working Time menu

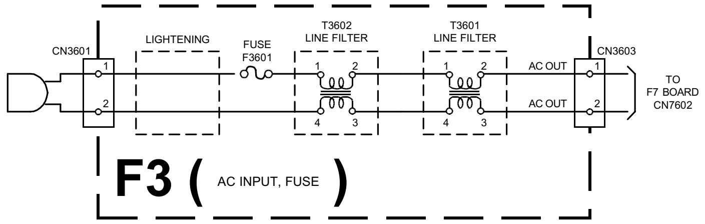
5-1. BLOCK DIAGRAMS (1)

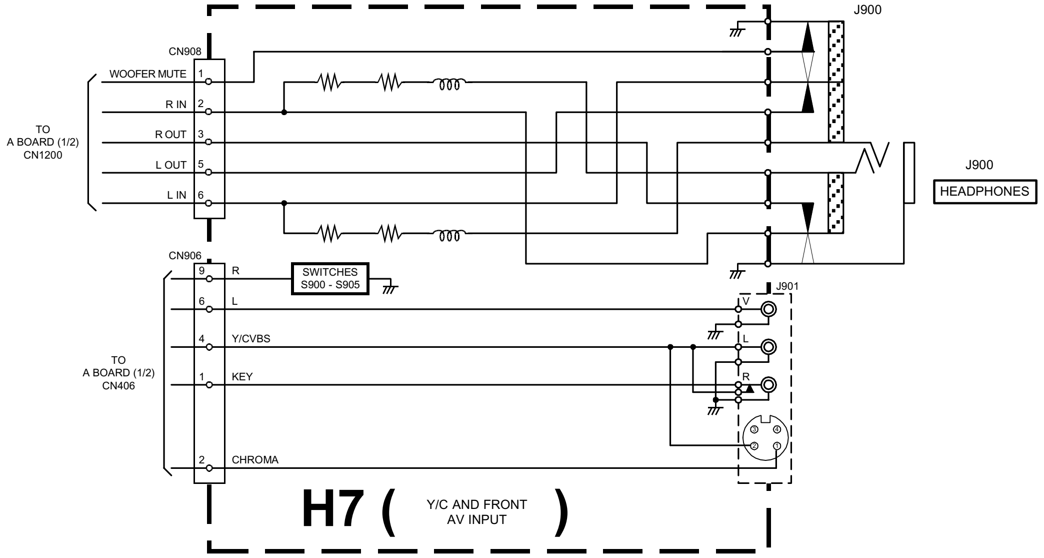

B1 (Y, U, V SWITCHING)
CN8401
TO A1 BOARD CN4103
1 Y IN
2 U IN
3 V IN
4 FBLK IN
BUFFER AMP Q8402 Q8405
BUFFER AMP Q8403 Q8406
BUFFER AMP Q8404 Q8407
SWITCH Q8401
IC8401 MULTIPLEXER/ DE-MULTIPLEXER
2 Y0
5 Z0
12 X0
9 C
10 B
11 A
X 14
Z 4
Y 15
Y1 1
Z1 3
X1 13
V OUT
U OUT
Y OUT
Y IN
U IN
V IN
CN8402
1
2
3
5
6
7
TO A BOARD (1/2) CN002

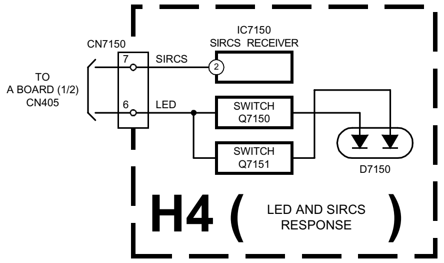

C (R.G.B. OUT)
CN703
TO A BOARD CN003
6 G IN
5 B IN
7 R IN
2 IK
1 NS CORRECT
IC701 R.G.B. DRIVE
1
2
3
5
9 G OUT
8 B OUT
7 R OUT
CN707
H1 1
TO A BOARD (2/2) CN508
CN706
G2 1
TO FBT
J701
6
3
9
8
10
PICTURE TUBE
IC1801 ROTATION AMP
1
2
3
7
6
CN1801
ROT (-) 3
ROT (+) 1
TO ROTATION COIL

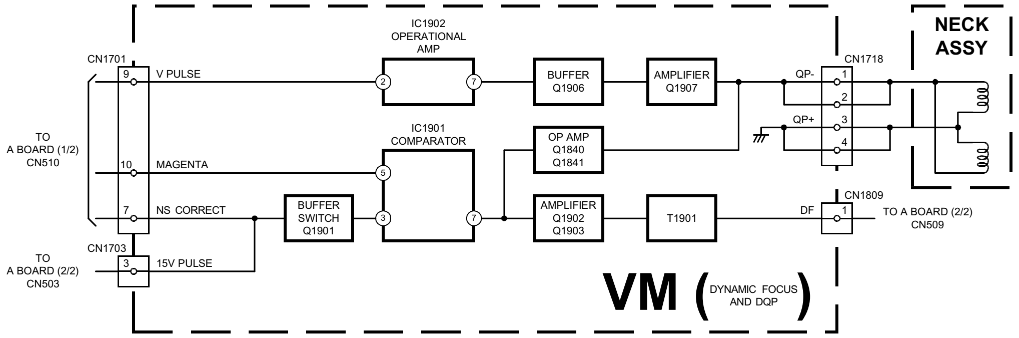

D2 (SMART MODE SWITCH)
CN8801
SMART 6
SWITCH 2
HDY- 8
TO A BOARD (2/2) CN512
SWITCH Q8802 Q8803
+8V
1
2
3
4
IC8801 SMART MODE DEFLECTION
MOSFET SWITCH Q8801
CN8802
SWITCH 1
TO D3 BOARD CN2801

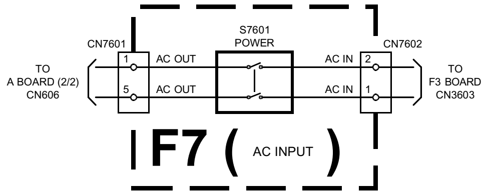

DY ASSY
H DY
V DY
H- DY+
H- DY-
V- DY-
V- DY+
TO D2 BOARD CN8802
CN2801
1 SW
RELAY SWITCH Q2801,Q2802
+8V
CN2802
1 H- DY+
2 H- DY+
3 H- DY-
4 H- DY-
5 V- DY-
6 V- DY+
T2801
1
2
4
5
10
8
6
RY2801
CN2803
1 H- DY+
2 H- DY+
3 H- DY-
4 H- DY-
5 V- DY-
6 V- DY+
TO A BOARD (2/2) CN501
D3 (4:3 SWITCHING)


CN3601
1
2
LIGHTENING
FUSE F3601
T3602 LINE FILTER
1 2 4 3
T3601 LINE FILTER
1 2 4 3
AC OUT
AC OUT
CN3603
1
2
TO F7 BOARD CN7602
F3 (AC INPUT, FUSE)

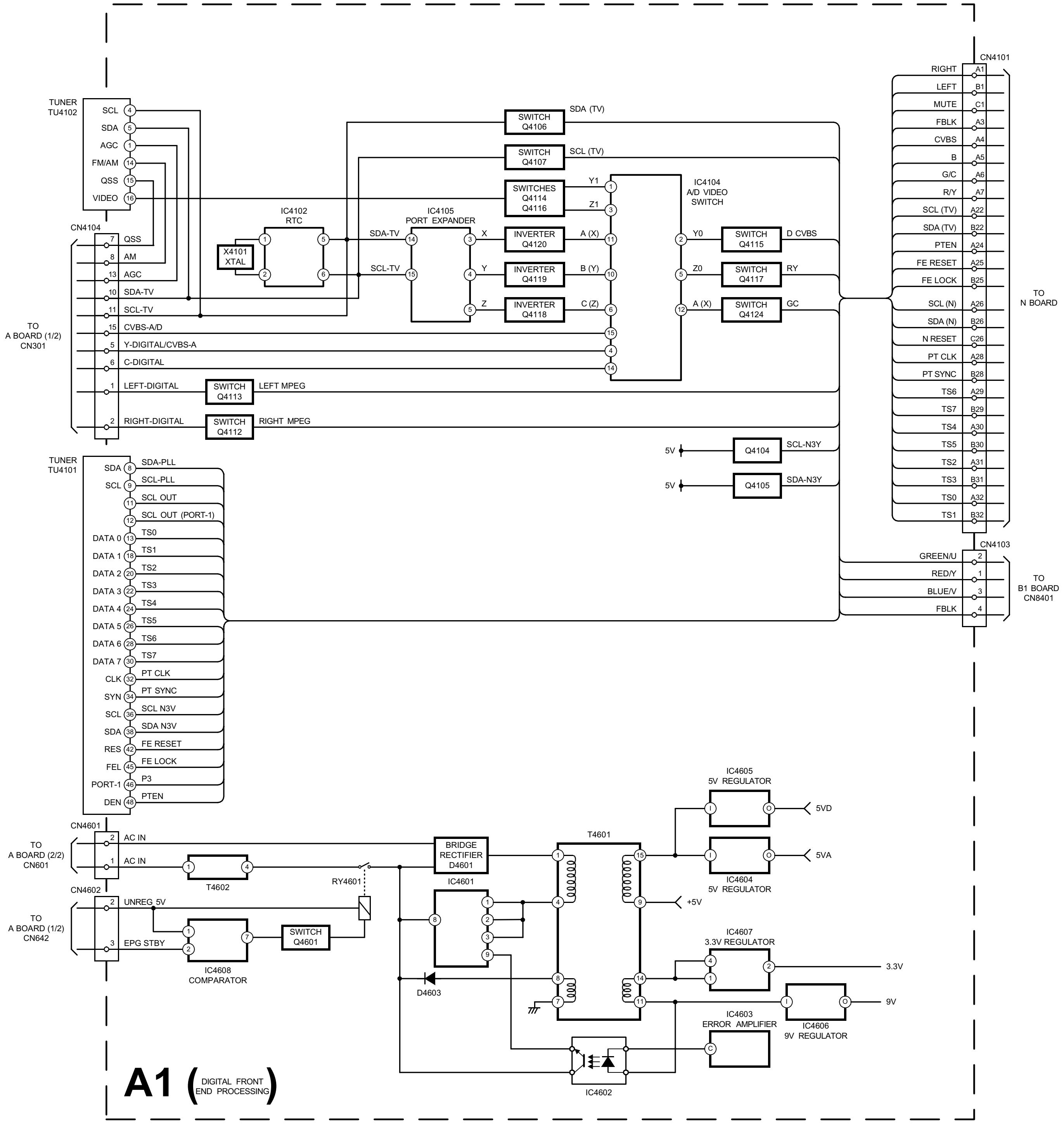

J900
CN908
1 WOOFER MUTE
2 R IN
3 R OUT
5 L OUT
6 L IN
TO A BOARD (1/2) CN1200
J900
HEADPHONES
CN906
9 R
6 L
4 Y/CVBS
1 KEY
2 CHROMA
TO A BOARD (1/2) CN406
SWITCHES S900 - S905
J901
V
L
R
H7 (Y/C AND FRONT AV INPUT)

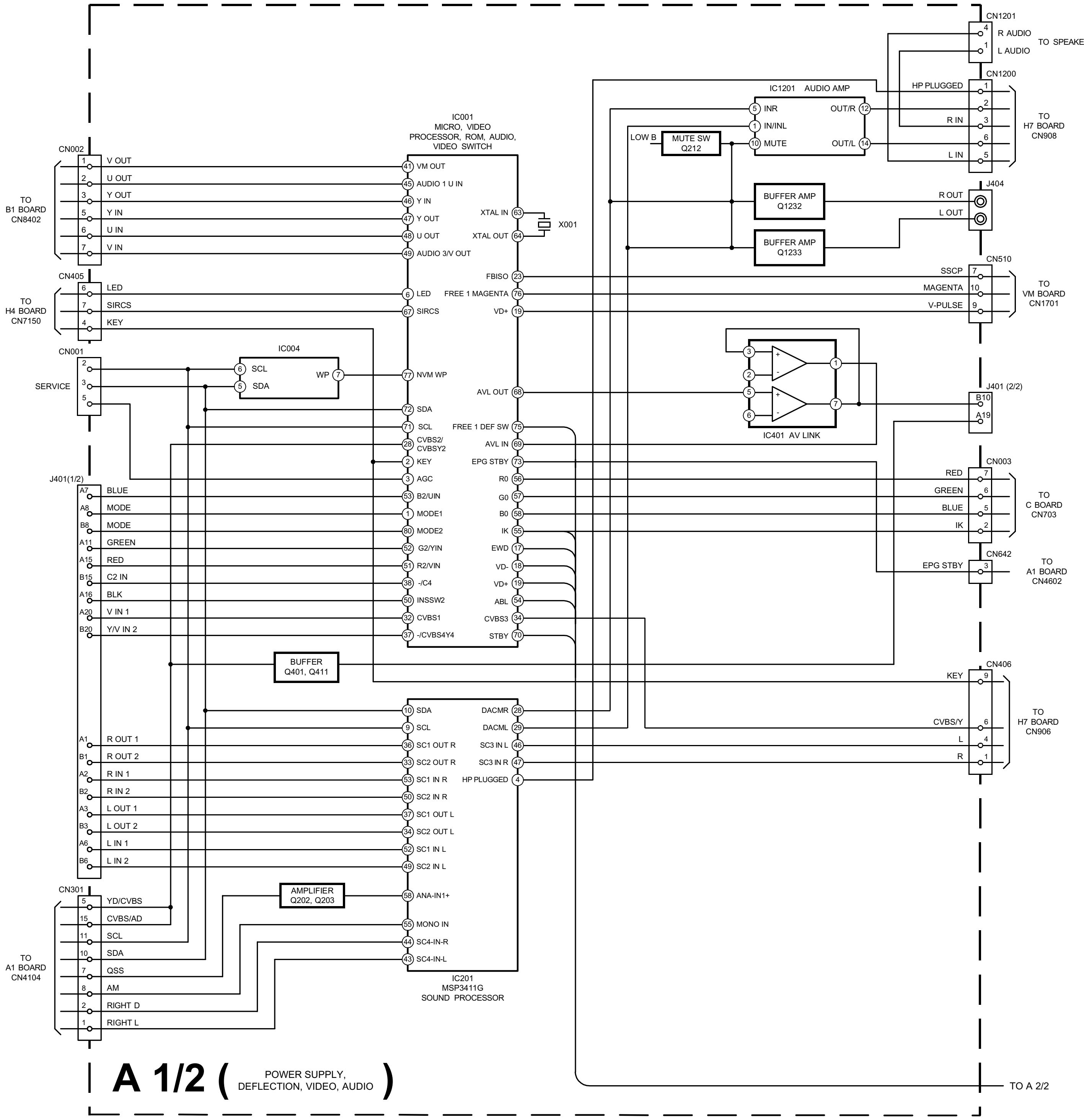

CN7150
TO A BOARD (1/2) CN405
7 SIRCS
6 LED
IC7150 SIRCS RECEIVER
2
SWITCH Q7150
SWITCH Q7151
D7150
H4 (LED AND SIRCS RESPONSE)


CN1701
TO A BOARD (1/2) CN510
9 V PULSE
10 MAGENTA
7 NS CORRECT
CN1703
TO A BOARD (2/2) CN503
3 15V PULSE
IC1902 OPERATIONAL AMP
2
7
BUFFER Q1906
AMPLIFIER Q1907
IC1901 COMPARATOR
5
3
7
BUFFER SWITCH Q1901
OP AMP Q1840 Q1841
AMPLIFIER Q1902 Q1903
T1901
CN1718
QP- 1
2
QP+ 3
4
NECK ASSY
CN1809
DF 1
TO A BOARD (2/2) CN509
VM (DYNAMIC FOCUS AND DQP)

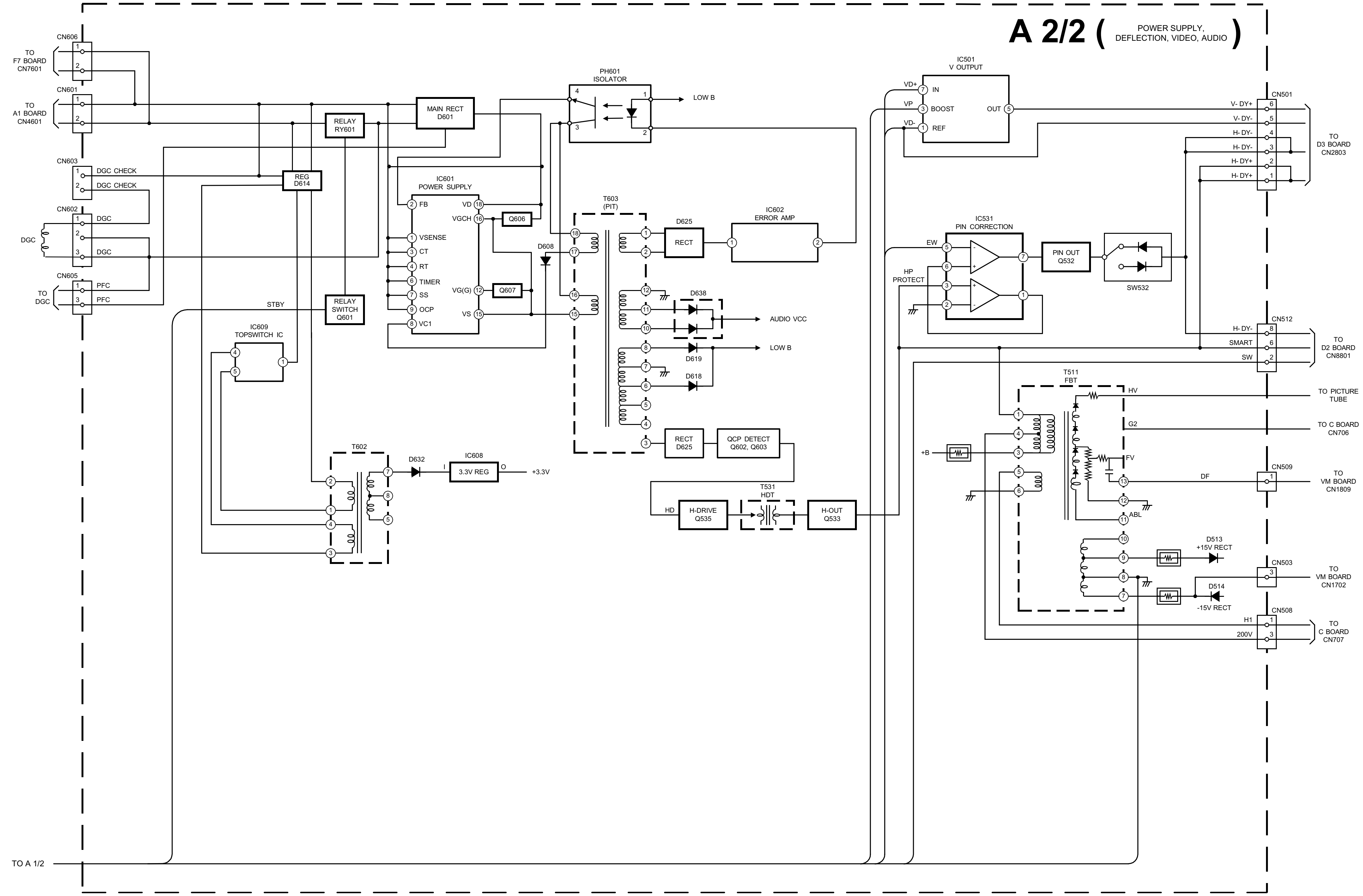

CN7601
TO A BOARD (2/2) CN606
1 AC OUT
5 AC OUT
S7601 POWER
CN7602
AC IN 2
AC IN 1
TO F3 BOARD CN3603
F7 (AC INPUT)

5-1. BLOCK DIAGRAMS (2)

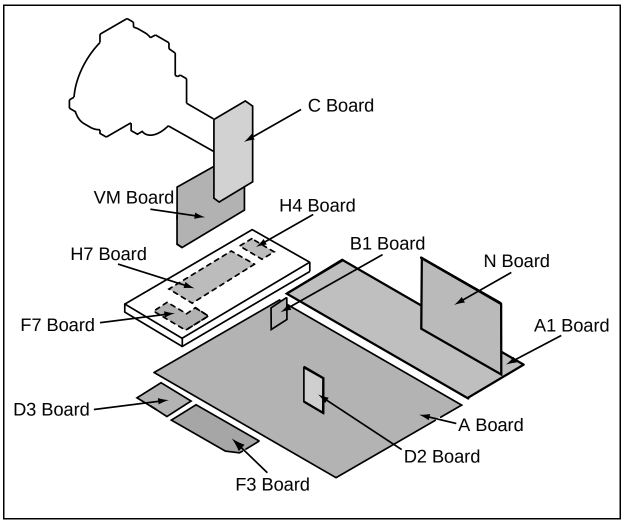

TUNER TU4102
SCL
SDA
AGC
FM/AM
QSS
VIDEO
CN4104
QSS
AM
AGC
SDA-TV
SCL-TV
CVBS-A/D
Y-DIGITAL/CVBS-A
C-DIGITAL
LEFT-DIGITAL
RIGHT-DIGITAL
TO A BOARD (1/2) CN301
SWITCH Q4106
SWITCH Q4107
SWITCHES Q4114 Q4116
SDA (TV)
SCL (TV)
IC4102 RTC
X4101 XTAL
IC4105 PORT EXPANDER
SDA-TV
SCL-TV
INVERTER Q4120
INVERTER Q4119
INVERTER Q4118
IC4104 A/D VIDEO SWITCH
SWITCH Q4115
SWITCH Q4117
SWITCH Q4124
D CVBS
RY
GC
SWITCH Q4113
LEFT MPEG
SWITCH Q4112
RIGHT MPEG
5V
Q4104
SCL-N3Y
Q4105
SDA-N3Y
TUNER TU4101
SDA-PLL
SCL-PLL
SCL OUT
SCL OUT (PORT-1)
DATA 0 … DATA 7
TS0 … TS7
CLK
PT CLK
SYN
PT SYNC
SCL N3V
SDA N3V
RES
FE RESET
FEL
FE LOCK
PORT-1
P3
DEN
PTEN
CN4101
RIGHT
LEFT
MUTE
FBLK
CVBS
B
G/C
R/Y
SCL (TV)
SDA (TV)
PTEN
FE RESET
FE LOCK
SCL (N)
SDA (N)
N RESET
PT CLK
PT SYNC
TS6
TS7
TS4
TS5
TS2
TS3
TS0
TS1
TO N BOARD
CN4103
GREEN/U
RED/Y
BLUE/V
FBLK
TO B1 BOARD CN8401
CN4601
AC IN
TO A BOARD (2/2) CN601
T4602
RY4601
BRIDGE RECTIFIER D4601
IC4601
T4601
D4603
IC4605 5V REGULATOR
5VD
IC4604 5V REGULATOR
5VA
+5V
IC4607 3.3V REGULATOR
3.3V
IC4603 ERROR AMPLIFIER
IC4606 9V REGULATOR
9V
IC4602
CN4602
UNREG 5V
EPG STBY
TO A BOARD (1/2) CN642
IC4608 COMPARATOR
SWITCH Q4601
A1 (DIGITAL FRONT END PROCESSING)


CN002
V OUT
U OUT
Y OUT
Y IN
U IN
V IN
TO B1 BOARD CN8402
CN405
LED
SIRCS
KEY
TO H4 BOARD CN7150
CN001
SERVICE
IC004
SCL
SDA
WP
IC001 MICRO, VIDEO PROCESSOR, ROM, AUDIO, VIDEO SWITCH
VM OUT
AUDIO 1 U IN
Y IN
Y OUT
U OUT
AUDIO 3/V OUT
XTAL IN
XTAL OUT
X001
FBISO
FREE 1 MAGENTA
VD+
NVM WP
AVL OUT
FREE 1 DEF SW
AVL IN
EPG STBY
R0
G0
B0
IK
EWD
VD-
VD+
ABL
CVBS3
STBY
J401(1/2)
BLUE
MODE
GREEN
RED
C2 IN
BLK
V IN 1
Y/V IN 2
BUFFER Q401, Q411
R OUT 1
R OUT 2
R IN 1
R IN 2
L OUT 1
L OUT 2
L IN 1
L IN 2
IC201 MSP3411G SOUND PROCESSOR
DACMR
DACML
SC3 IN L
SC3 IN R
HP PLUGGED
AMPLIFIER Q202, Q203
ANA-IN1+
MONO IN
SC4-IN-R
SC4-IN-L
CN301
YD/CVBS
CVBS/AD
SCL
SDA
QSS
AM
RIGHT D
RIGHT L
TO A1 BOARD CN4104
CN1201
R AUDIO
L AUDIO
TO SPEAKERS
CN1200
IC1201 AUDIO AMP
INR
IN/INL
MUTE
OUT/R
OUT/L
LOW B
MUTE SW Q212
HP PLUGGED
R IN
L IN
TO H7 BOARD CN908
J404
BUFFER AMP Q1232
BUFFER AMP Q1233
R OUT
L OUT
CN510
SSCP
MAGENTA
V-PULSE
TO VM BOARD CN1701
IC401 AV LINK
J401 (2/2)
CN003
RED
GREEN
BLUE
IK
TO C BOARD CN703
CN642
EPG STBY
TO A1 BOARD CN4602
CN406
KEY
CVBS/Y
L
R
TO H7 BOARD CN906
TO A 2/2
A 1/2 (POWER SUPPLY, DEFLECTION, VIDEO, AUDIO)

5-1. BLOCK DIAGRAMS (3)


A 2/2 (POWER SUPPLY, DEFLECTION, VIDEO, AUDIO)
CN606
TO F7 BOARD CN7601
CN601
TO A1 BOARD CN4601
CN603
DGC CHECK
DGC CHECK
CN602
DGC
DGC
DGC
CN605
PFC
PFC
TO DGC
STBY
RELAY RY601
MAIN RECT D601
REG D614
RELAY SWITCH Q601
IC609 TOPSWITCH IC
IC601 POWER SUPPLY
FB
VD
VGCH
Q606
VSENSE
CT
RT
TIMER
SS
OCP
VC1
VG(G)
Q607
VS
D608
PH601 ISOLATOR
LOW B
T603 (PIT)
D625
RECT
IC602 ERROR AMP
D638
AUDIO VCC
LOW B
D619
D618
RECT D625
OCP DETECT Q602, Q603
T602
D632
IC608
3.3V REG
+3.3V
HD
H-DRIVE Q535
T531 HDT
H-OUT Q533
IC501 V OUTPUT
VD+
VP
VD-
IN
BOOST
REF
OUT
IC531 PIN CORRECTION
EW
HP PROTECT
PIN OUT Q532
SW532
CN501
V- DY+
V- DY-
H- DY-
H- DY-
H- DY+
H- DY+
TO D3 BOARD CN2803
CN512
H- DY-
SMART
SW
TO D2 BOARD CN8801
T511 FBT
HV
TO PICTURE TUBE
G2
TO C BOARD CN706
+B
FV
DF
CN509
TO VM BOARD CN1809
ABL
D513 +15V RECT
D514 -15V RECT
CN503
TO VM BOARD CN1702
CN508
H1
200V
TO C BOARD CN707
TO A 1/2

5-2. CIRCUIT BOARD LOCATION



5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note :

- All capacitors are in µF unless otherwise noted.
- pF : µµF 50WV or less are not indicated except for electrolytic types.
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch : 5mm
Electrical power rating : 1/4W

- Chip resistors are 1/10W
- All resistors are in ohms.
  k = 1000 ohms, M = 1000,000 ohms
- ╼▭╾ : nonflammable resistor.
- ╼▭╾ : fusible resistor.
- △ : internal component.
- ▭ : panel designation or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- All voltages are in Volts.
- Readings are taken with a 10Mohm digital mutimeter.
- Readings are taken with a color bar input signal.
- Voltage variations may be noted due to normal production tolerences.
- ▬▬ : B + bus.
- ▬ ▬ ▬ : B - bus.
- ⇨ : RF signal path.
- ⊥ : earth - ground.
- ⏚ : earth - chassis.

Reference Information

RESISTOR	**RN**	: METAL FILM
	RC	: SOLID
	FPRD	: NON FLAMMABLE CARBON
	FUSE	: NON FLAMMABLE FUSIBLE
	RS	: NON FLAMMABLE METAL OXIDE
	RB	: NON FLAMMABLE CEMENT
	RW	: NON FLAMMABLE WIREWOUND
	⊠	: ADJUSTMENT RESISTOR
COIL	**LF-8L**	: MICRO INDUCTOR
CAPACITOR	**TA**	: TANTALUM
	PS	: STYROL
	PP	: POLYPROPYLENE
	PT	: MYLAR
	MPS	: METALIZED POLYESTER
	MPP	: METALIZED POLYPROPYLENE
	ALB	: BIPOLAR
	ALT	: HIGH TEMPERATURE
	ALR	: HIGH RIPPLE

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

Note : Les composants identifiés par une trame et par une marque ⚠ sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié. specified.

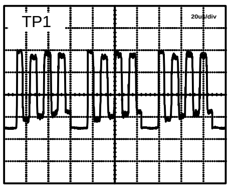
~ A Board IC Voltage Table~

Ref No	Pin No	Voltage (V)	Ref No	Pin No	Voltage (V)
IC001	1	0	IC001	67	4.8
	2	3.2		68	0.4
	3	2.9		69	0
	5	0		70	0
	6	2.0		71	0
	8	2.3		72	0
	9	8.0		73	7.1
	10	5.0		74	5.0
	12	0		75	8.1
	13	0		76	-3.5
	14	4.0		77	0
	16	1.4		78	3.2
	17	1.5		79	3.2
	18	0		80	0
	19	0	IC501	1	0.3
	20	3.8		3	-12.6
	21	3.8		5	0.2
	22	5.0		6	13.9
	26	0		7	0.3
	28	3.5	IC531	1	1.4
	29	3.6		2	2.3
	30	1.9		3	1.8
	31	0.3		5	2.4
	32	3.6		6	1.6
	34	1.9		7	6.4
	35	1.4	IC601	1	-80.4
	36	3.9		2	-80.5
	38	1.8		3	-80.2
	40	3.3		4	-80.2
	42	3.3		5	-81.5
	43	1.4		6	-81.6
	45	0		7	-77.8
	46	0		9	-81.8
	47	3.6		10	-76
	48	2.8		11	-81.9
	49	2.3		12	-79.4
	50	0.2		14	16.5
	51	2.5		15	11
	52	2.5		16	14.4
	53	2.5		18	86.4
	54	2.1	IC1201	1	11
	55	5.2		3	4.9
	56	3.0		5	0
	57	3.1		6	0
	58	3.1		7	11.3
	59	3.2		9	0.3
	62	0		10	0
	63	0		12	0
	64	0		14	11.35
	65	0			

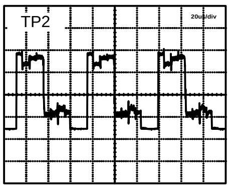
~ A Board Difference Table~

Ref	KD-28DX50	KD-32DX50
C522	0.27UF	NOT FITTED
C536	0.82UF	1UF
C539	1UF	2.2UF
C542	330PF	0.001UF
C547	0.082UF	0.068UF
C555	22000PF	19000PF
C570	2.2UF	NOT FITTED
C641	470UF 20% 16V	470UF 20% 25V
CN503	NOT FITTED	PLUG 3P
D638	YG802C09RF122	FMW-2109LF654
JR101	NOT FITTED	0
Q570	2SC2412K-T-146-R	NOT FITTED
R022	47K	39K
R053	15K	82K
R455	SHORT 0	4.7UH
R513	220K	NOT FITTED
R516	56K	47K
R517	18K	22K
R518	2.7K	6.8K
R521	220K	NOT FITTED
R534	100K	390K
R535	120K	220K
R540	33	47
R546	820	1K
R568	680	820
R569	10K	NOT FITTED
R570	1K	NOT FITTED
R571	270	NOT FITTED
R572	390	NOT FITTED
R583	10K	15K
R600	390	120
R601	470	680
T533	1-433-980-12 Transformer, Horizontal Linear	1-429-306-11 Transformer, Horizontal Linear

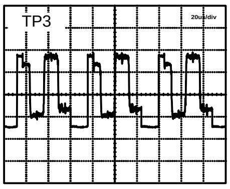
~ A Board Waveforms ~



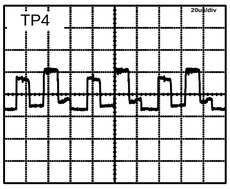
1.88 Vp-p (H)



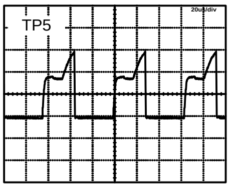
1.84 Vp-p (H)



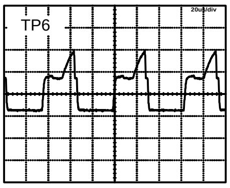
1.86 Vp-p (H)



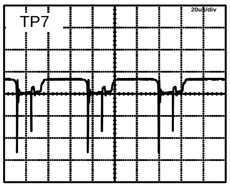
6.0 Vp-p (H)



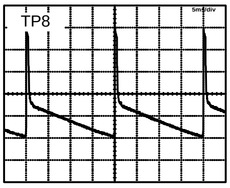
5.4 Vp-p (H)



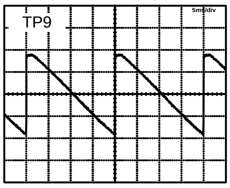
16.8 Vp-p (H)



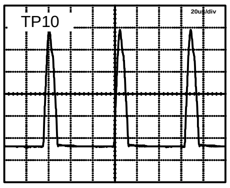
1.83 Vp-p (V)



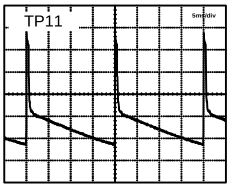
488 mVp-p (V)



49.8 Vp-p (V)



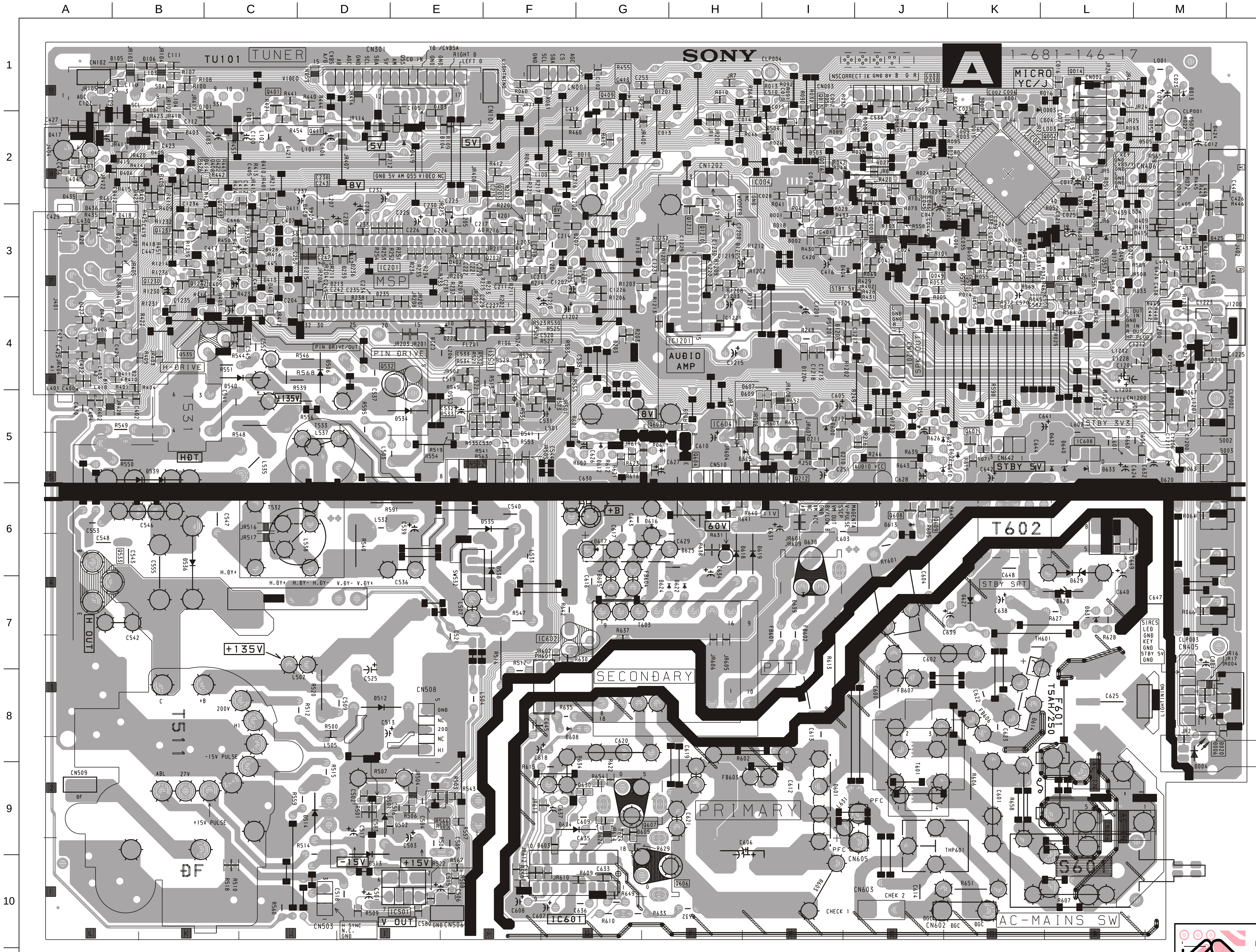
1.06 kVp-p (H)



50.8 Vp-p (V)

~ A Board Semiconductor Voltage Table ~

Ref	(e)	(b)	(c)	Ref	(e)	(b)	(c)
Q013	0	0.7	0	Q604	0	0	2.5
Q016	0	0	3.3	Q608	0	0	5.6
Q212	0	0.7	0	Q609	5.6	5.6	0
Q401	4.8	4.2	1.8				
Q411	1.1	1.7	4.2	**Ref**	**(s)**	**(g)**	**(d)**
Q601	5.6	4.8	5.3	Q606	10.9	14.5	86.7
Q602	14.2	5.1	8	Q607	-82.4	-79.9	10.9
Q603	8	8	0	Q535	0	2.5	95.2


A
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K
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8
9
10
SONY
1-681-146-17
TU101
TUNER
MICRO
YC/J
MSP
IC1201
AUDIO AMP
H-DRIVE
PIN DRIVE
+135V
HDT
+B
60V
T602
STBY SRT
STBY 5V
STBY 3V3
SECONDARY
PIT
PRIMARY
T511
DF
-15V
+15V
V OUT
IC601
IC602
T5AH/250
F601
AC-MAINS SW
CHECK 1
CHEK 2
PFC
THP601
S601
H OUT
CN508
CN509
CN503

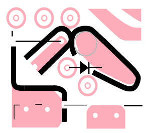
~ A Printed Wiring Board Conductor side ~

~ A Board Semiconductor Location Table ~

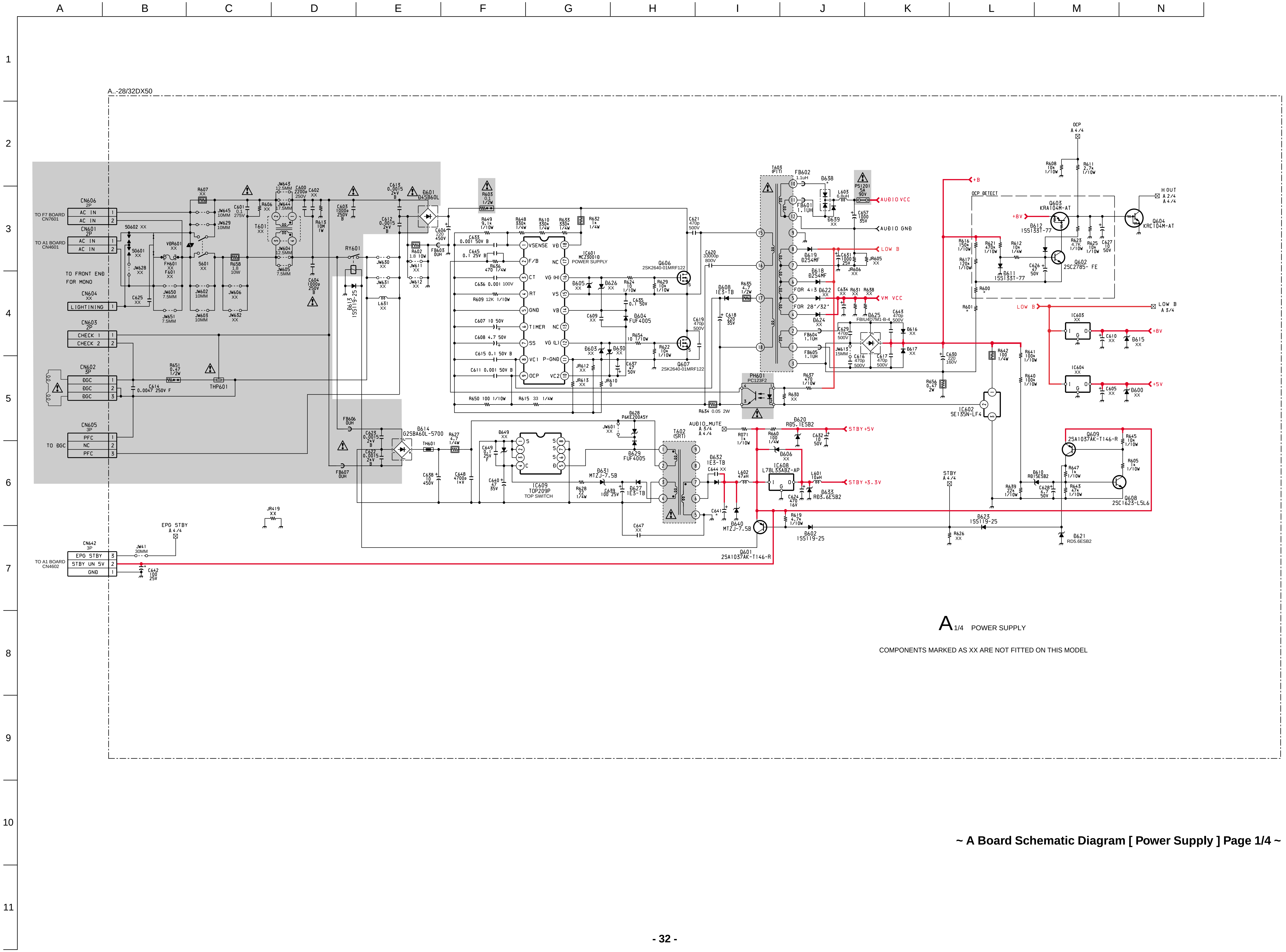
DIODE	
D001	I - 2
D002	I - 3
D003	K - 2
D004	M - 4
D006	M - 8
D007	K - 1
D008	L - 3
D010	G- 2
D011	F - 2
D013	M - 1
D016	J - 2
D018	I - 3
D020	M - 8
D021	L - 2
D022	J - 2
D035	K - 3
D036	K - 3
D051	L - 3
D101	B - 1
D103	E - 1
D104	E - 2
D105	A - 1
D106	B - 1
D107	B - 2
D207	F - 3
D210	I - 5
D211	I - 5
D212	I - 5
D228	E - 4
D236	D - 3
D239	D - 3
D402	E - 3
D403	B - 2
D404	I - 3
D405	B - 2
D406	B - 2
D407	B - 2
D408	B - 2
D410	C - 2
D411	C - 3
D412	D - 3
D413	C - 3
D414	B - 2
D418	B - 3
D419	E - 2
D420	B - 2
D421	C - 2
D422	C - 2
D423	C - 2
D424	M - 2
D427	A - 4
D428	C - 3
D429	D - 3
D435	A - 2
D436	A - 2
D501	D - 9
D502	D - 9
D503	I - 2
D504	I - 2
D505	M - 2
D506	D - 4
D507	M - 2
D512	D - 8
D513	D - 9
D514	C - 9
D534	E - 5
D535	E - 6
D536	B - 6
D537	C - 4
D538	E - 6
D539	B - 5
D541	F - 5
D573	F - 5
D601	I - 9
D602	J - 5
D604	F - 9
D608	F - 8
D610	J - 5
D611	G - 5
D612	G - 5
D613	J - 6
D614	K - 8
D615	H - 5
D618	H - 6
D619	H - 6
D620	M - 5
D621	J - 5
D622	H - 7
D623	J - 5
D625	H - 6
D627	K - 7
D628	L - 7
D629	L - 7
D631	L - 7
D632	K - 5
D633	L - 5
D638	I - 6
D640	L - 5

TRANSISTOR	
Q013	I - 3
Q014	L - 1
Q049	J - 3
Q202	E - 3
Q203	F - 2
Q212	I - 5
Q401	C - 1
Q409	G - 1
Q411	D - 2
Q532	D - 4
Q533	A - 6
Q535	B - 4
Q601	K - 5
Q602	G - 5
Q603	G - 5
Q604	H - 5
Q606	G-10
Q607	G - 9
Q608	J - 6
Q609	J - 6
Q1210	H - 3
Q1211	H - 3
Q1230	B - 3
Q1231	B - 3
Q1232	B - 3
Q1233	C - 2

IC'S	
IC001	K - 2
IC002	M- 8
IC004	H - 2
IC401	I - 3
IC501	E-10
IC531	F- 4
IC601	F-10
IC602	F- 7
IC604	H- 5
IC608	L- 5
IC609	L- 6
IC1201	H- 4



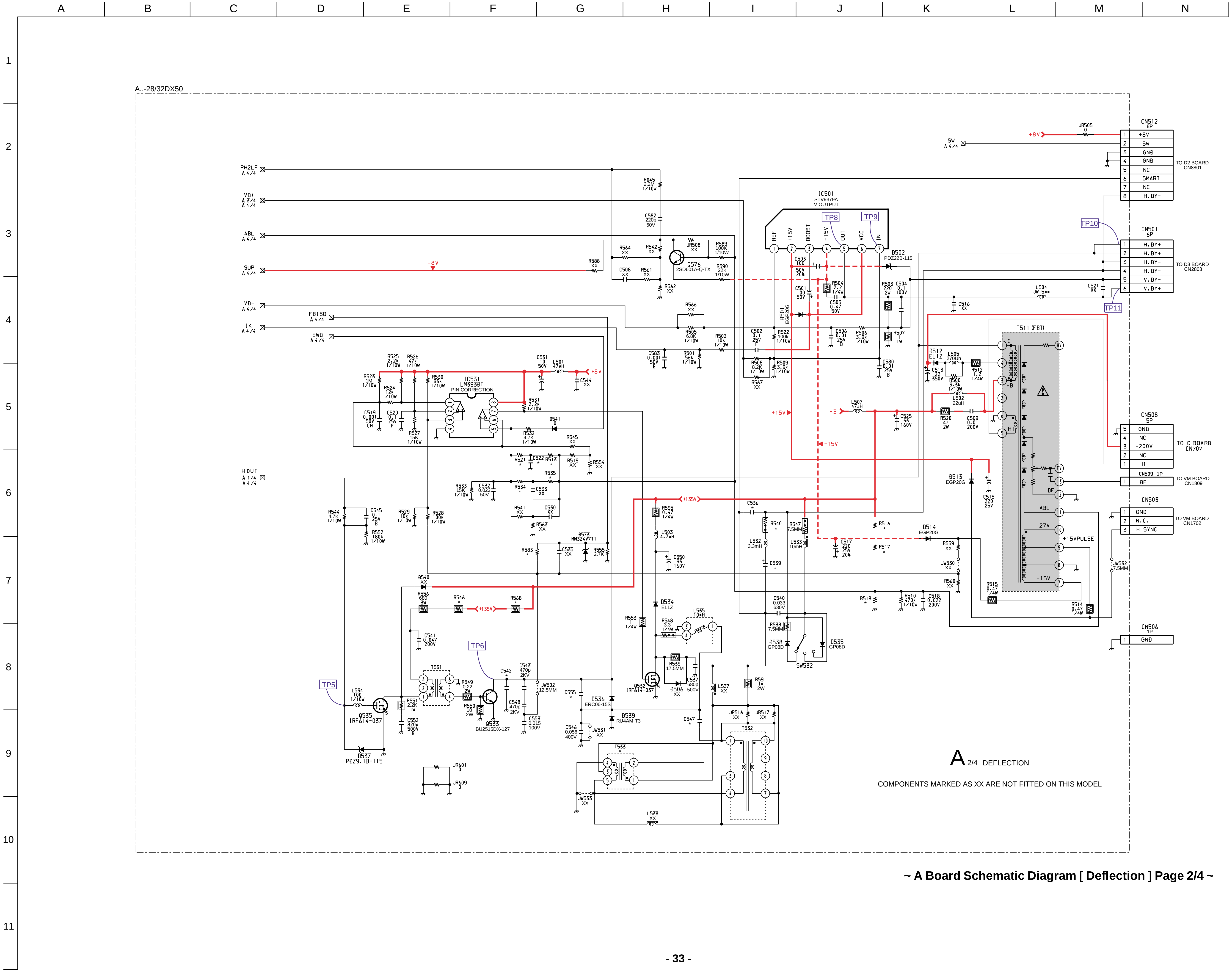
NOTE:
Portions of the circuit marked as shown are high voltage areas. Use care to prevent electric shock during inspection or repair.


A..-28/32DX50
TO F7 BOARD CN7601
CN606 2P
AC IN
TO A1 BOARD CN4601
CN601 2P
TO FRONT END FOR MONO
CN604 XX
LIGHTINING
CN603 2P
CHECK 1
CHECK 2
CN602 3P
DGC
CN605 3P
TO DGC
PFC
NC
TO A1 BOARD CN4602
CN642 3P
EPG STBY
STBY UN 5V
GND
EPG STBY A 4/4
RY601
D601 D4SB60L
IC601 MC33001D POWER SUPPLY
Q606 2SK2640-01MRF122
Q607 2SK2640-01MRF122
IC609 TOP209P TOP SWITCH
D614 G2SBA60L-5700
TH601
THP601
T603 (FBT)
T602 (SRT)
PH601 PC123F2
PS1201 5A 90V
AUDIO VCC
AUDIO GND
LOW B
VM VCC
FOR 4:3
FOR 28"/32"
AUDIO_MUTE A 3/4 A 4/4
STBY +5V
STBY +3.3V
IC608 L78L33ABZ-AP
Q601 2SA1037AK-T146-R
IC602 SE135N-LF4
+B
OCP A 4/4
OCP DETECT
Q603 KRA104M-AT
Q602 2SC2785- FE
Q604 KRC104M-AT
H OUT A 2/4 A 4/4
+8V
LOW B A 3/4
IC603
IC604
+5V
Q609 2SA1037AK-T146-R
Q608 2SC1623-L5L6
STBY A 4/4

A 1/4 POWER SUPPLY

COMPONENTS MARKED AS XX ARE NOT FITTED ON THIS MODEL

~ A Board Schematic Diagram [Power Supply] Page 1/4 ~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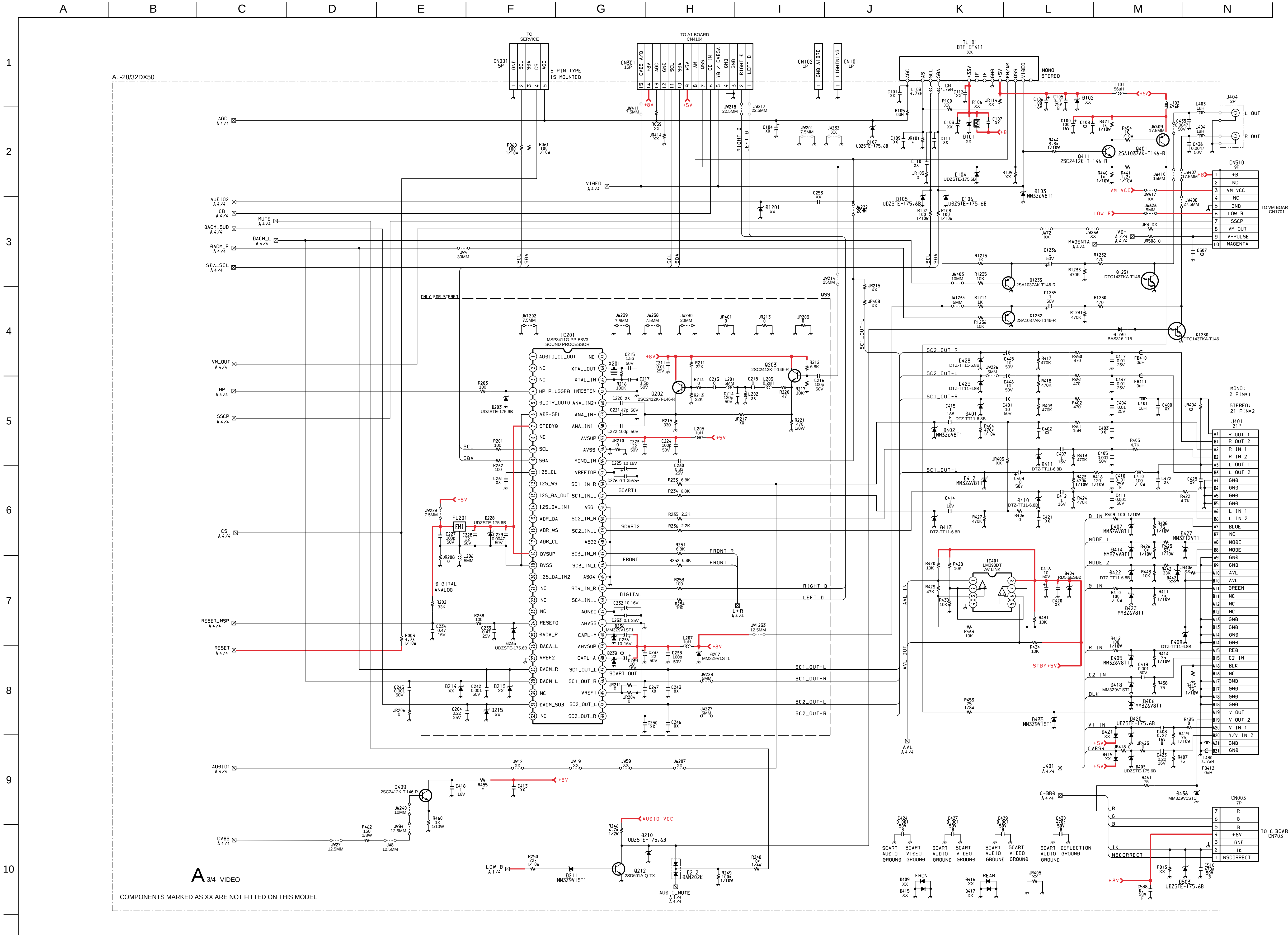
11
A..-28/32DX50
PH2LF A4/4
VD+ A3/4 A4/4
ABL A4/4
SUP A4/4
VD- A4/4
IK A4/4
FBISO A4/4
EWD A4/4
H OUT A1/4 A4/4
SW A4/4
+8V
R045 2.2M 1/10W
C582 220p 50V
R564 XX
R542 XX
JR508 XX
R589 100K 1/10W
R588 XX
Q576 2SD601A-Q-TX
R590 22K 1/10W
C508 XX
R561 XX
R562 XX
IC501 STV9379A V OUTPUT
TP8
TP9
REF
+15V
BOOST
-15V
OUT
VCC
IN
D502 PDZ22B-115
C503 100 50V 20%
C501 100 50V
R504 2.2 1/4W
C505 0.47 50V
D501 EGP20G
R503 220 2W
C504 0.1 100V
R566 XX
R505 6.8K 1/10W
R502 10K 1/10W
C583 0.001 50V B
R501 56K 1/10W
C502 0.1 25V F
R522 100K 1/10W
C506 0.01 25V B
R506 3.9K 1/10W
R507 1 1W
R508 8.2K 1/10W
R509 3.9K 1/10W
R567 XX
C580 0.01 25V B
C516 XX
L504 JW 5mm
C521 XX
TP10
TP11
JR505 0
CN512 8P
+8V
SW
GND
GND
NC
SMART
NC
H.DY-
TO D2 BOARD CN8801
CN501 6P
H.DY+
H.DY+
H.DY-
H.DY-
V.DY-
V.DY+
TO D3 BOARD CN2803
R525 2.2K 1/10W
R526 47K 1/10W
C531 10 50V
L501 47uH
+8V
C544 XX
R523 1M 1/10W
R530 33K 1/10W
IC531 LM393DT PIN CORRECTION
R524 12K 1/10W
R531 2.2K 1/10W
C519 0.001 50V CH
C520 0.1 25V F
R527 15K 1/10W
R532 4.7K 1/10W
D541 0
R545 XX
R521
C522
R513
R519 XX
R554 XX
R535
R533 15K 1/10W
C532 0.022 50V
R534
C533 XX
R541 XX
C530 XX
R563 XX
D512 EL1Z
L505 270uH
R512 1.2 1/4W
C513 22 350V
R500 3.9K 1/10W
L502 22uH
T511 (FBT)
HV
+B
+15V
+B
L507 47uH
C525 33 160V
R520 47 2W
C509 0.01 200V
H1
-15V
CN508 5P
GND
NC
+200V
NC
H1
TO C BOARD CN707
D513 EGP20G
C515 220 25V
FV
DF
ABL
27V
+15VPULSE
-15V
CN509 1P
DF
TO VM BOARD CN1809
CN503
GND
N.C.
H SYNC
TO VM BOARD CN1702
R544 4.7K 1/10W
C545 0.1 25V B
R552 180K 1/10W
R529 10K 1/10W
R528 100K 1/10W
+135V
R595 0.47 1/4W
L503 4.7uH
C536
R540
R547 7.5MM
L532 3.3mH
L533 10mH
C517 220 25V 20%
R516
R517
D514 EGP20G
R559 XX
JW530 XX
R560 XX
R515 0.47 1/4W
JW532 7.5MM
R514 0.47 1/4W
R583
C535 XX
D573 MM3Z4V7T1
R555 2.7K
C550 33 160V
C539
D540 XX
R556 680 3W
R546
+135V
R568
C541 0.047 200V
D534 EL1Z
L535 10uH
R553 1 1/4W
R548 3.3 1/4W
C540 0.033 630V
R538 7.5MM
D538 GP08D
D535 GP08D
SW532
R518
R510 470K 1/10W
C518 0.022 200V
TP6
TP5
T531
R549 0.22 2W
C542
C543 470p 2KV
JW502 12.5MM
R539 17.5MM
C537 680p 500V
L537 XX
R591 1K 2W
L534 100 1/10W
Q535 IRF614-037
R551 2.2K 1W
C552 820p 500V B
R550 10 2W
Q533 BU2515DX-127
C548 470p 2KV
C553 0.015 100V
C555
D536 ERC06-15S
Q532 IRF614-037
D506 XX
D539 RU4AM-T3
C546 0.056 400V
JW531 XX
C547
JR516 XX
JR517 XX
T532
T533
D537 PDZ9.1B-115
JR601 0
JR609 0
JW533 XX
L538 XX
CN506 1P
GND
A 2/4 DEFLECTION

COMPONENTS MARKED AS XX ARE NOT FITTED ON THIS MODEL

~ A Board Schematic Diagram [Deflection] Page 2/4 ~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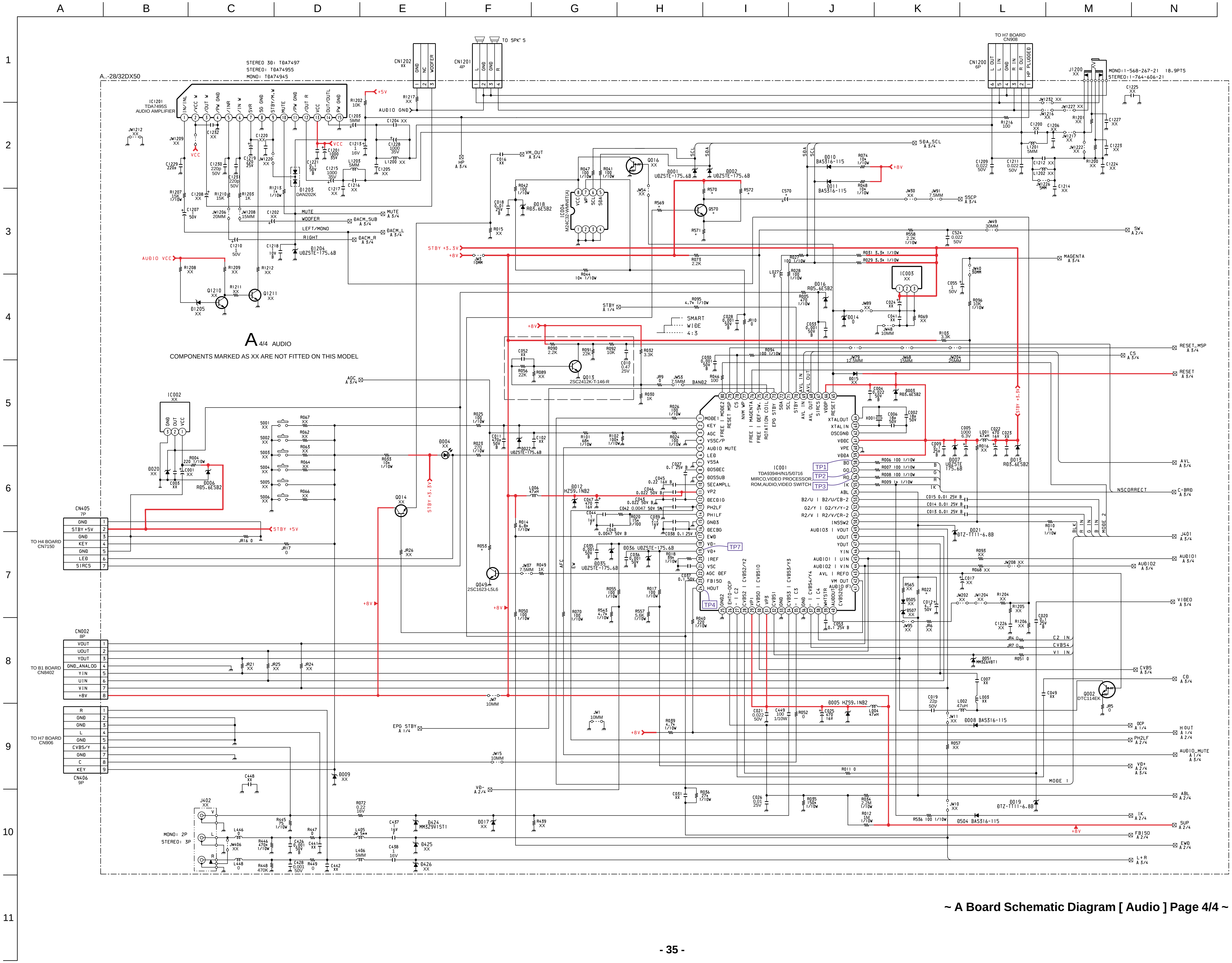
11
A..-28/32DX50
TO SERVICE
CN001 5P
5 PIN TYPE IS MOUNTED
TO A1 BOARD CN4104
CN301 15P
CN102 1P
CN101 1P
TU101 BTF-EF411 XX
MONO STEREO
AGC A4/4
AUDIO2 A4/4
CD A4/4
MUTE A4/4
DACM_SUB A4/4
DACM_L A4/4
DACM_R A4/4
SDA_SCL A4/4
VIDEO A4/4
VM_OUT A4/4
HP A4/4
SSCP A4/4
CS A4/4
RESET_MSP A4/4
RESET A4/4
AUDIO1 A4/4
CVBS A4/4
LOW B A1/4
AUDIO_MUTE A1/4 A4/4
ONLY FOR STEREO
IC201 MSP3411G-PP-B8V3 SOUND PROCESSOR
IC401 LM393DT AV LINK
Q202 2SC2412K-T-146-R
Q203 2SC2412K-T-146-R
Q401 2SA1037AK-T146-R
Q411 2SC2412K-T-146-R
Q1231 DTC143TKA-T146
Q1230 DTC143TKA-T146
Q1232 2SA1037AK-T146-R
Q1233 2SA1037AK-T146-R
Q409 2SC2412K-T-146-R
Q212 2SD601A-Q-TX
J404 2P
L OUT
R OUT
CN510 9P
TO VM BOARD CN1701
+B
NC
VM VCC
NC
GND
LOW B
SSCP
VM OUT
V-PULSE
MAGENTA
MONO: 21PIN*1
STEREO: 21 PIN*2
J401 21P
R OUT 1
R OUT 2
R IN 1
R IN 2
L OUT 1
L OUT 2
L IN 1
L IN 2
BLUE
MODE
AVL
GREEN
RED
C2 IN
BLK
V OUT 1
V OUT 2
V IN 1
Y/V IN 2
CN003 7P
TO C BOARD CN703
R
G
B
+8V
GND
IK
NSCORRECT
SC1_OUT-L
SC1_OUT-R
SC2_OUT-L
SC2_OUT-R
SC2_OUT-R
RIGHT D
LEFT D
FRONT R
FRONT L
SCART1
SCART2
SCART OUT
DIGITAL
ANALOG
AUDIO VCC
STBY+5V
+5V
+8V
SCART AUDIO GROUND
SCART VIDEO GROUND
SCART DEFLECTION AUDIO GROUND
FRONT
REAR
A 3/4 VIDEO
COMPONENTS MARKED AS XX ARE NOT FITTED ON THIS MODEL

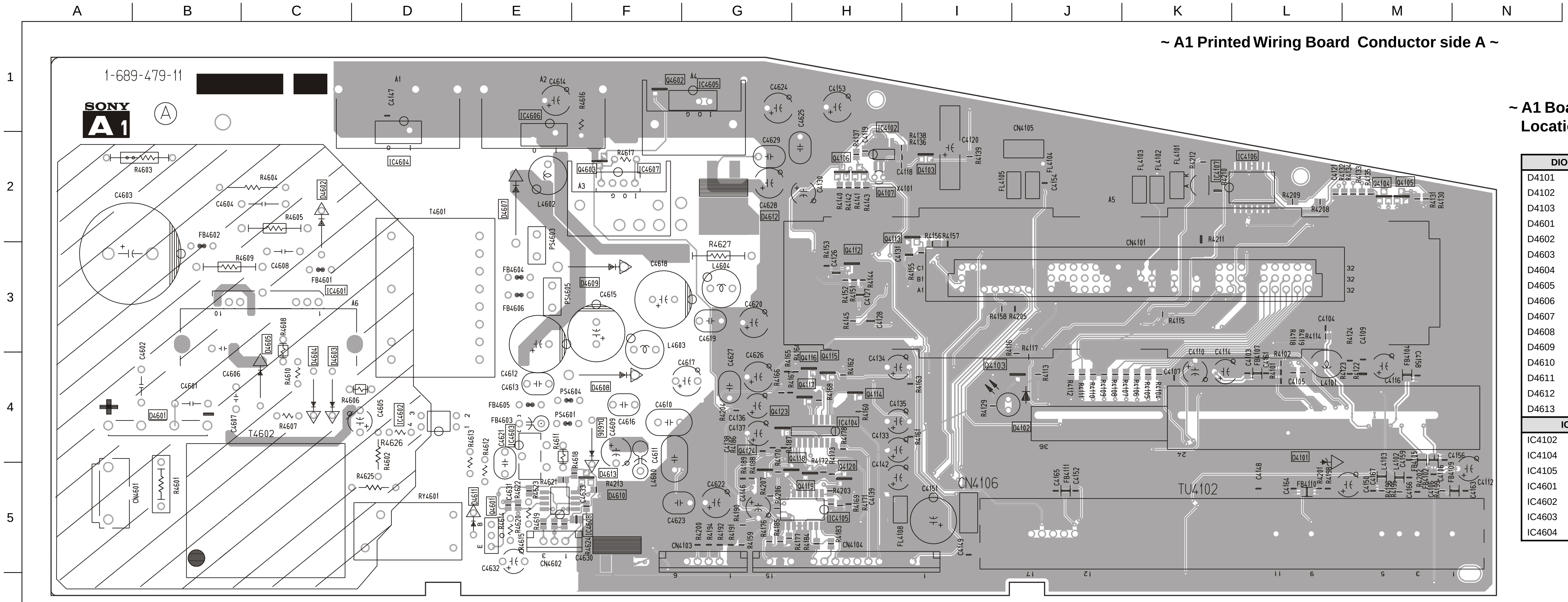
~ A Board Schematic Diagram [Video] Page 3/4 ~



A..-28/32DX50
STEREO 3D: TDA7497
STEREO: TDA7495S
MONO: TDA7494S
IC1201
TDA7495S
AUDIO AMPLIFIER
CN1202
CN1201
4P
TO SPK'S
TO H7 BOARD
CN908
CN1200
6P
J1200
MONO:1-568-267-21 18.9PTS
STEREO:1-764-606-21
AUDIO VCC
A 4/4 AUDIO
COMPONENTS MARKED AS XX ARE NOT FITTED ON THIS MODEL
IC002
IC004
IC003
IC001
TDA9394H/N1/5/0716
MIRCO,VIDEO PROCESSOR,
ROM,AUDIO,VIDEO SWITCH
TP1
TP2
TP3
TP4
TP7
CN405
7P
TO H4 BOARD
CN7150
GND
STBY+5V
GND
KEY
GND
LED
SIRCS
CN002
8P
TO B1 BOARD
CN8402
VOUT
UOUT
YOUT
GND_ANALOG
YIN
UIN
VIN
+8V
TO H7 BOARD
CN906
R
GND
GND
L
GND
CVBS/Y
GND
C
KEY
CN406
9P
J402
MONO: 2P
STEREO: 3P
STBY +3.3V
+8V
+5V
SDA_SCL
SSCP
SW
MAGENTA
RESET_MSP
CS
RESET
AVL
C-BRO
J401
AUDIO1
AUDIO2
VIDEO
CVBS
CD
HOUT
PH2LF
AUDIO_MUTE
VD+
ABL
IK
SUP
FBISO
EWD
L+R
EPG STBY
MUTE
WOOFER
LEFT/MONO
RIGHT
DACM_SUB
DACM_L
DACM_R
AGC
VM_OUT
HP
SMART
WIDE
4:3
STBY
VD-
Q013
2SC2412K-T146-R
Q049
2SC1623-L5L6
Q002
DTC114EK
NSCORRECT
MODE I

~ A Board Schematic Diagram [Audio] Page 4/4 ~

~ A1 Printed Wiring Board Conductor side A ~


A
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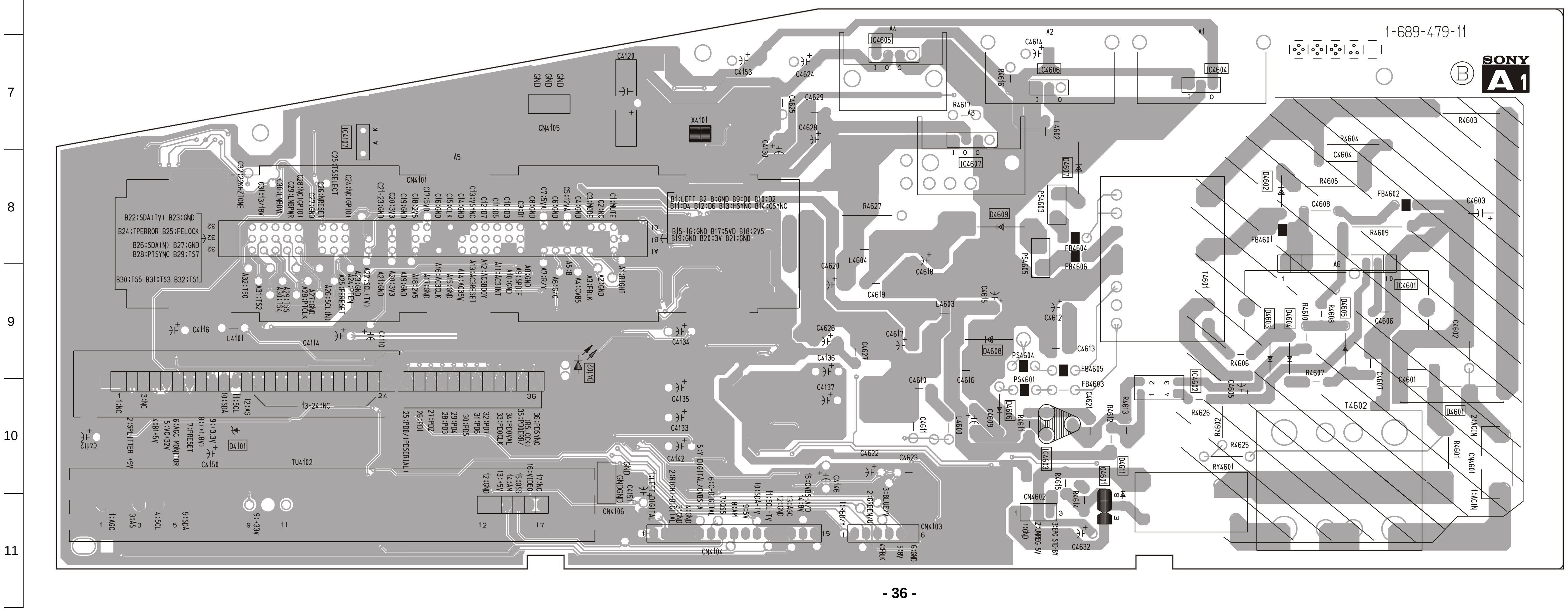
6
1-689-479-11
SONY
A1
A
CN4101
TU4102
CN4106
T4601
T4602
RY4601
CN4601
CN4602
CN4103
CN4104

~ A1 Board Semiconductor Location Table (side A) ~

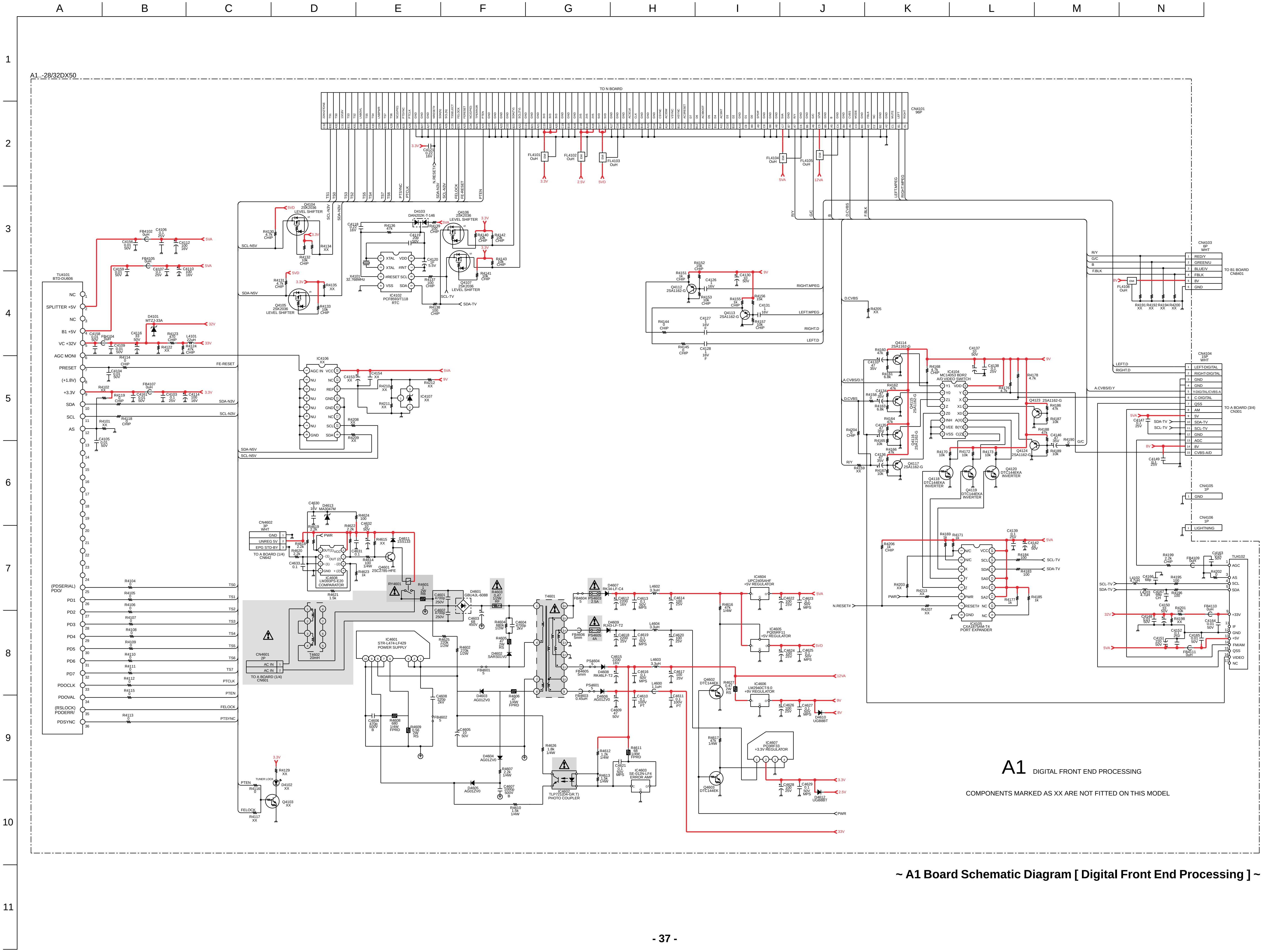
DIODE	
D4101	L - 4
D4102	J - 4
D4103	I - 2
D4601	B - 4
D4602	C - 2
D4603	C - 4
D4604	C - 4
D4605	C - 4
D4606	F - 4
D4607	E - 2
D4608	F - 4
D4609	F - 3
D4610	F - 5
D4611	E - 5
D4612	G - 2
D4613	F - 5
IC	
IC4102	H - 2
IC4104	H - 4
IC4105	H - 5
IC4601	C - 3
IC4602	D - 4
IC4603	E - 4
IC4604	D - 2
IC4605	G - 1
IC4606	E - 1
IC4607	F - 2
IC4608	F - 8
TRANSISTOR	
Q4103	I - 3
Q4104	M - 2
Q4105	M - 2
Q4106	H - 2
Q4107	H - 2
Q4112	H - 3
Q4113	H - 3
Q4114	H - 4
Q4115	H - 4
Q4116	H - 4
Q4117	H - 4
Q4118	H - 5
Q4119	H - 5
Q4120	H - 5
Q4123	G - 4
Q4124	G - 5
Q4601	E - 5
Q4602	F - 1
Q4603	F - 2

~ A1 Printed Wiring Board Conductor side B ~


7
8
9
10
11
1-689-479-11
SONY
A1
B
CN4101
CN4105
TU4102
CN4106
CN4104
CN4103
CN4602
CN4601
T4602
RY4601

~ A1 Board Semiconductor Location Table (side B) ~

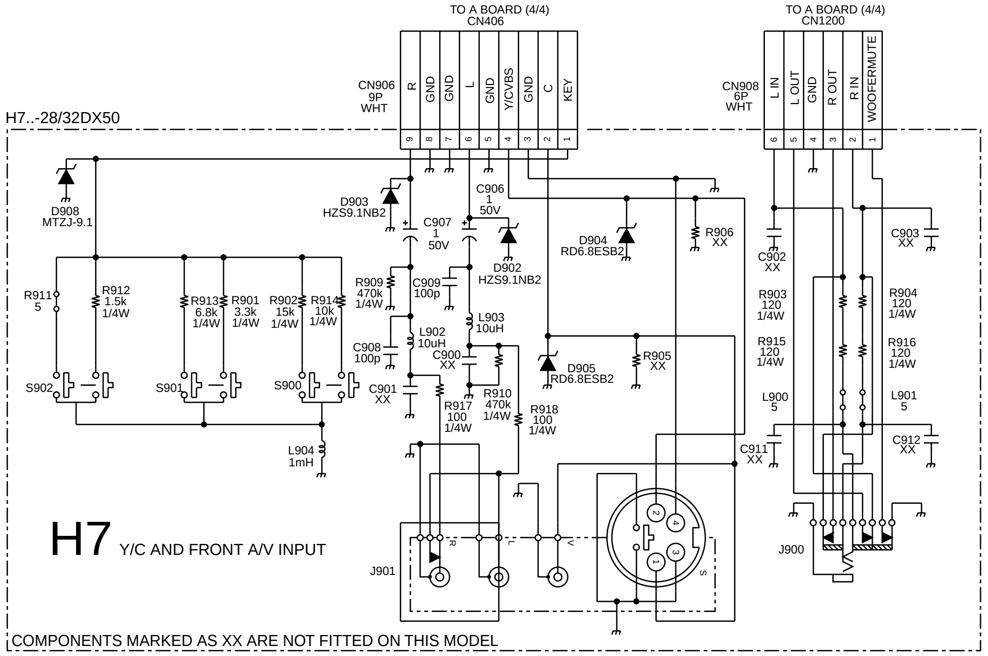
DIODE	
D4101	B - 10
D4102	E - 9
D4601	M -10
D4603	K - 9
D4604	L - 9
D4605	L - 9
D4606	I - 10
D4607	J - 8
D4608	I - 9
D4609	I - 8
D4611	J - 10
IC	
IC4601	M - 9
IC4602	K - 10
IC4603	I - 10
IC4604	K - 7
IC4605	H - 7
IC4606	I - 7
IC4607	I - 8
TRANSISTOR	
Q4601	J - 11


A
B
C
D
E
F
G
H
I
J
K
L
M
N
1
2
3
4
5
6
7
8
9
10
11
A1 -28/32DX50
TO N BOARD
CN4101 96P
TU4101 BTD-DU606
NC
SPLITTER +5V
NC
B1 +5V
VC +32V
AGC MONI
PRESET
(+1.8V)
+3.3V
SDA
SCL
AS
(PDSERIAL) PDO/
PD1
PD2
PD3
PD4
PD5
PD6
PD7
PDOCLK
PDOVAL
(RSLOCK) PDOERR/
PDSYNC
Q4104 2SK2036 LEVEL SHIFTER
Q4105 2SK2036 LEVEL SHIFTER
Q4106 2SK2036 LEVEL SHIFTER
Q4107 2SK2036 LEVEL SHIFTER
D4103 DAN202K-T-146
IC4102 PCF8593/T118 RTC
X4101 32.768MHz
IC4106 XX
D4101 MTZJ-33A
IC4107 XX
CN4602 3P WHT
GND
UNREG 5V
EPG STD-BY
TO A BOARD (1/4) CN642
D4613 MA3047M
IC4609 LM393PS-E20 COMPARATOR
Q4601 2SC2785-HFE
D4611 1SS133
RY4601
IC4601 STR-L474-LF429 POWER SUPPLY
D4601 GBU4JL-6088
T4602 20mH
CN4601 2P
AC IN
TO A BOARD (1/4) CN601
T4601
IC4602 TLP721(D4-GR-T) PHOTO COUPLER
IC4603 SE-012N-LF4 ERROR AMP
IC4604 UPC2405AHF +5V REGULATOR
IC4605 PQ05RF11 +5V REGULATOR
IC4606 LM2940CT-9.0 +9V REGULATOR
IC4607 PQ3RF33 +3.3V REGULATOR
Q4602 DTC144EK
Q4603 DTC144EK
D4610 UGB8BT
D4612 UGB8BT
TUNER LOCK
D4102 XX
Q4103 XX
PTEN
FELOCK
IC4104 MC14053 BDR2 A/D VIDEO SWITCH
Q4114 2SA1162-G
Q4115 2SA1162-G
Q4116 2SA1162-G
Q4117 2SA1162-G
Q4123 2SA1162-G
Q4124 2SA1162-G
Q4118 DTC144EKA INVERTER
Q4119 DTC144EKA INVERTER
Q4120 DTC144EKA INVERTER
Q4112 2SA1162-G
Q4113 2SA1162-G
IC4105 CXA1875AM-T4 PORT EXPANDER
CN4103 6P WHT
RED/Y
GREEN/U
BLUE/V
FBLK
8V
GND
TO B1 BOARD CN8401
CN4104 15P WHT
LEFT-DIGITAL
RIGHT-DIGITAL
GND
GND
Y-DIGITAL/CVBS-A
C-DIGITAL
QSS
AM
5V
SDA-TV
SCL-TV
GND
AGC
8V
CVBS-A/D
TO A BOARD (3/4) CN301
CN4105 1P
GND
CN4106 1P
LIGHTNING
TU4102
AGC
AS
SCL
SDA
+33V
IF
GND
+5V
FM/AM
QSS
VIDEO
NC
N.RESET#
PWR
3.3V
2.5V
5VD
5VA
12VA
9V
8V
32V
33V

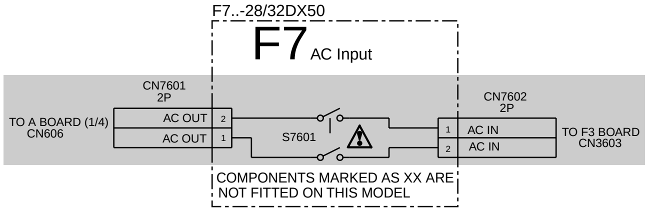
A1 DIGITAL FRONT END PROCESSING

COMPONENTS MARKED AS XX ARE NOT FITTED ON THIS MODEL

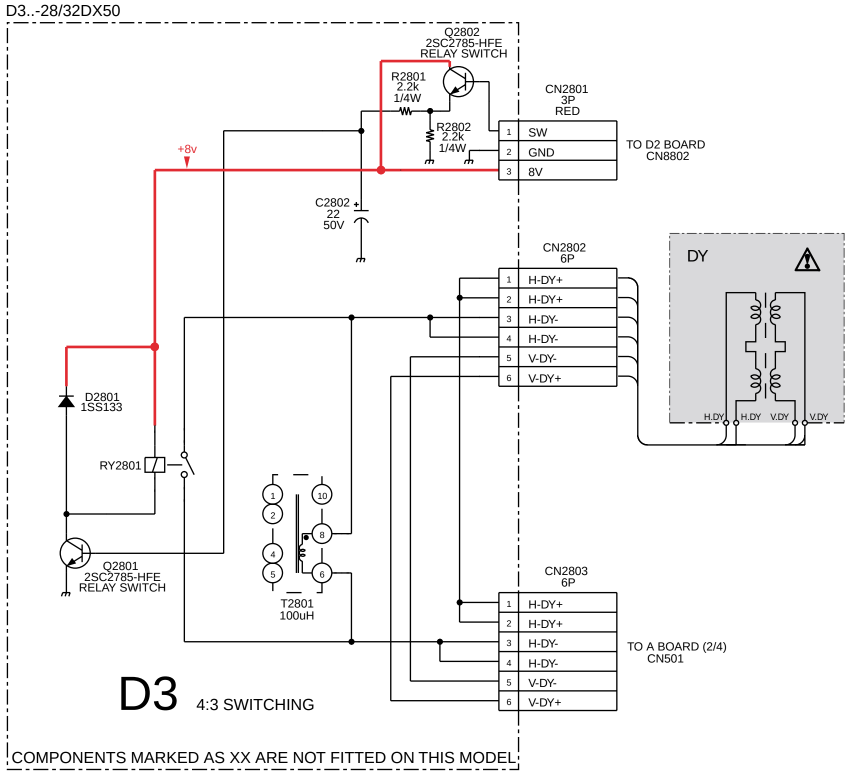
~ A1 Board Schematic Diagram [Digital Front End Processing] ~


TO A BOARD (4/4)
CN406
TO A BOARD (4/4)
CN1200
CN906
9P
WHT
R
GND
GND
L
GND
Y/CVBS
GND
C
KEY
CN908
6P
WHT
L IN
L OUT
GND
R OUT
R IN
WOOFERMUTE
H7..-28/32DX50
D908
MTZJ-9.1
D903
HZS9.1NB2
C907
1
50V
C906
1
50V
D902
HZS9.1NB2
D904
RD6.8ESB2
R906
XX
C902
XX
C903
XX
R911
5
R912
1.5k
1/4W
R913
6.8k
1/4W
R901
3.3k
1/4W
R902
15k
1/4W
R914
10k
1/4W
R909
470k
1/4W
C909
100p
L903
10uH
L902
10uH
C908
100p
C900
XX
C901
XX
R917
100
1/4W
R910
470k
1/4W
R918
100
1/4W
D905
RD6.8ESB2
R905
XX
R903
120
1/4W
R904
120
1/4W
R915
120
1/4W
R916
120
1/4W
L900
5
L901
5
C911
XX
C912
XX
S902
S901
S900
L904
1mH
J901
J900
H7 Y/C AND FRONT A/V INPUT
COMPONENTS MARKED AS XX ARE NOT FITTED ON THIS MODEL

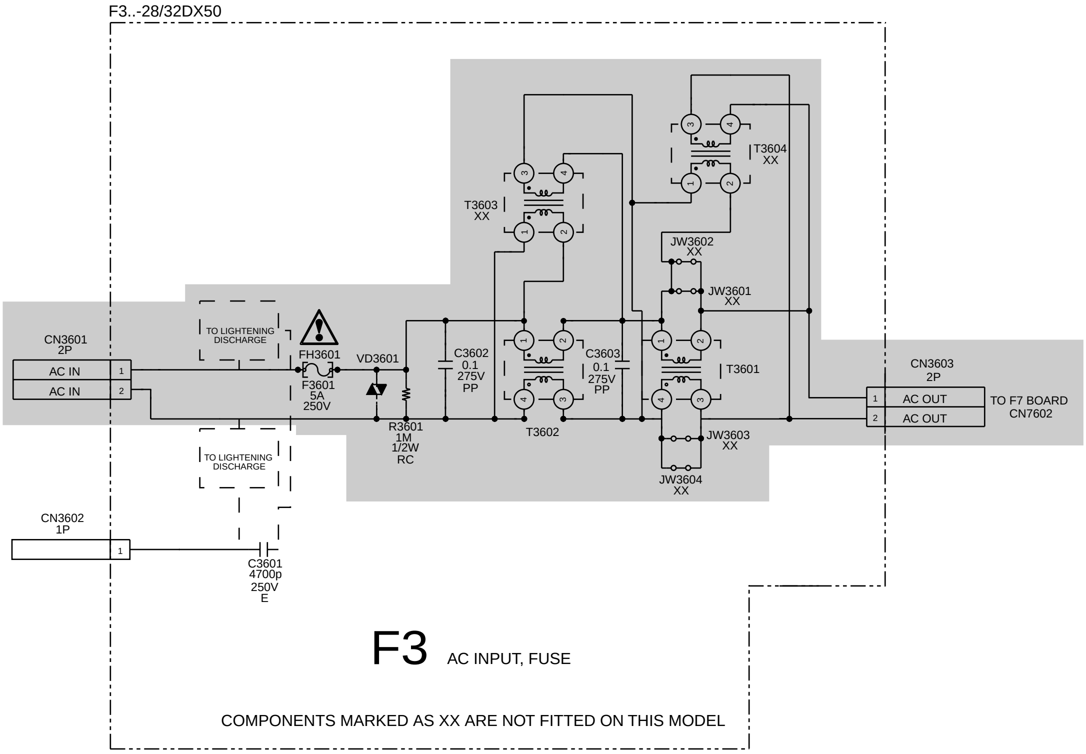
~ H7 Board Schematic Diagram [Y/C and Front AV Input] ~


F7..-28/32DX50
F7 AC Input
CN7601
2P
TO A BOARD (1/4)
CN606
AC OUT
AC OUT
S7601
CN7602
2P
AC IN
AC IN
TO F3 BOARD
CN3603
COMPONENTS MARKED AS XX ARE NOT FITTED ON THIS MODEL

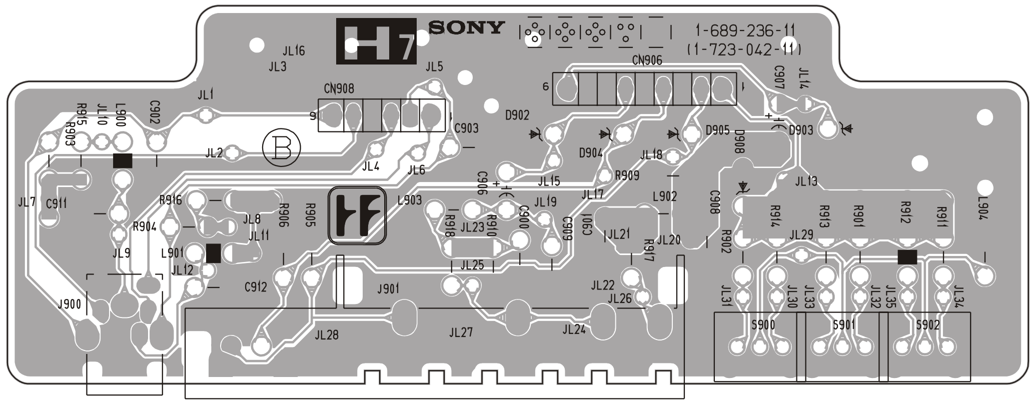
~ F7 Board Schematic Diagram [AC Input] ~


D3..-28/32DX50
Q2802
2SC2785-HFE
RELAY SWITCH
R2801
2.2k
1/4W
R2802
2.2k
1/4W
+8v
CN2801
3P
RED
SW
GND
8V
TO D2 BOARD
CN8802
C2802
22
50V
CN2802
6P
H-DY+
H-DY+
H-DY-
H-DY-
V-DY-
V-DY+
DY
D2801
1SS133
RY2801
Q2801
2SC2785-HFE
RELAY SWITCH
T2801
100uH
CN2803
6P
H-DY+
H-DY+
H-DY-
H-DY-
V-DY-
V-DY+
TO A BOARD (2/4)
CN501
D3 4:3 SWITCHING
COMPONENTS MARKED AS XX ARE NOT FITTED ON THIS MODEL

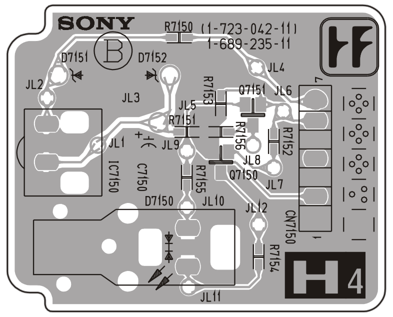
~ D3 Board Schematic Diagram [4:3 Switching] ~


F3..-28/32DX50
CN3601
2P
AC IN
AC IN
TO LIGHTENING DISCHARGE
FH3601
F3601
5A
250V
VD3601
R3601
1M
1/2W
RC
C3602
0.1
275V
PP
C3603
0.1
275V
PP
T3602
T3603
XX
T3604
XX
T3601
JW3602
XX
JW3601
XX
JW3603
XX
JW3604
XX
CN3603
2P
AC OUT
AC OUT
TO F7 BOARD
CN7602
CN3602
1P
C3601
4700p
250V
E
F3 AC INPUT, FUSE
COMPONENTS MARKED AS XX ARE NOT FITTED ON THIS MODEL

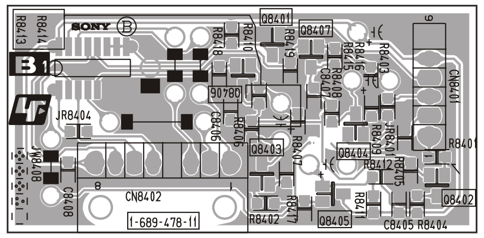
~ F3 Board Schematic Diagram [AC Input Fuse] ~


H7
SONY
1-689-236-11
(1-723-042-11)
CN906
CN908
J901
S900
S901
S902

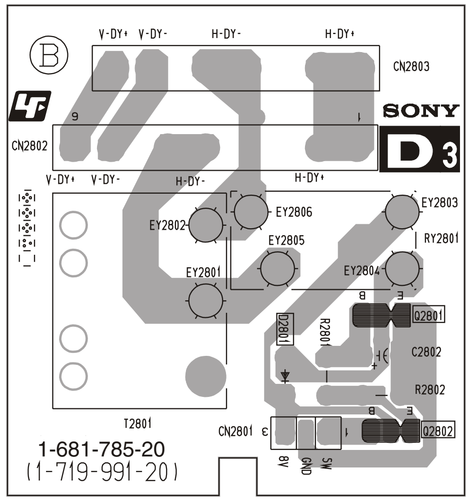
~ H7 Printed Wiring Board ~


SONY
1-723-042-11
1-689-235-11
CN7150
H4

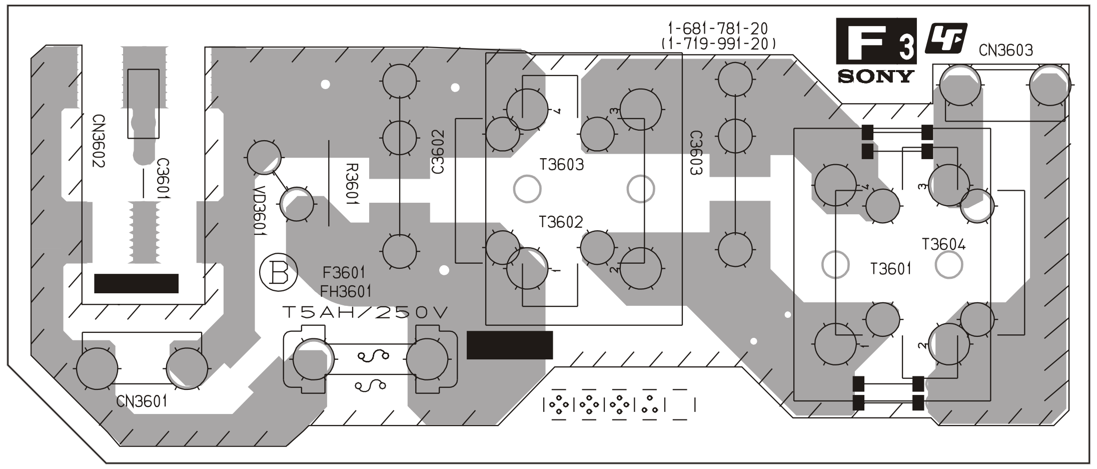
~ H4 Printed Wiring Board ~


SONY
B1
CN8402
CN8401
1-689-478-11

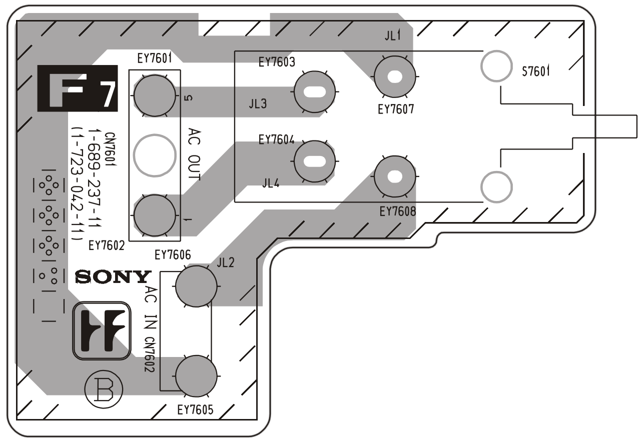
~ B1 Printed Wiring Board ~


V-DY+ V-DY- H-DY- H-DY+
CN2803
SONY
D3
CN2802
T2801
CN2801
1-681-785-20
(1-719-991-20)

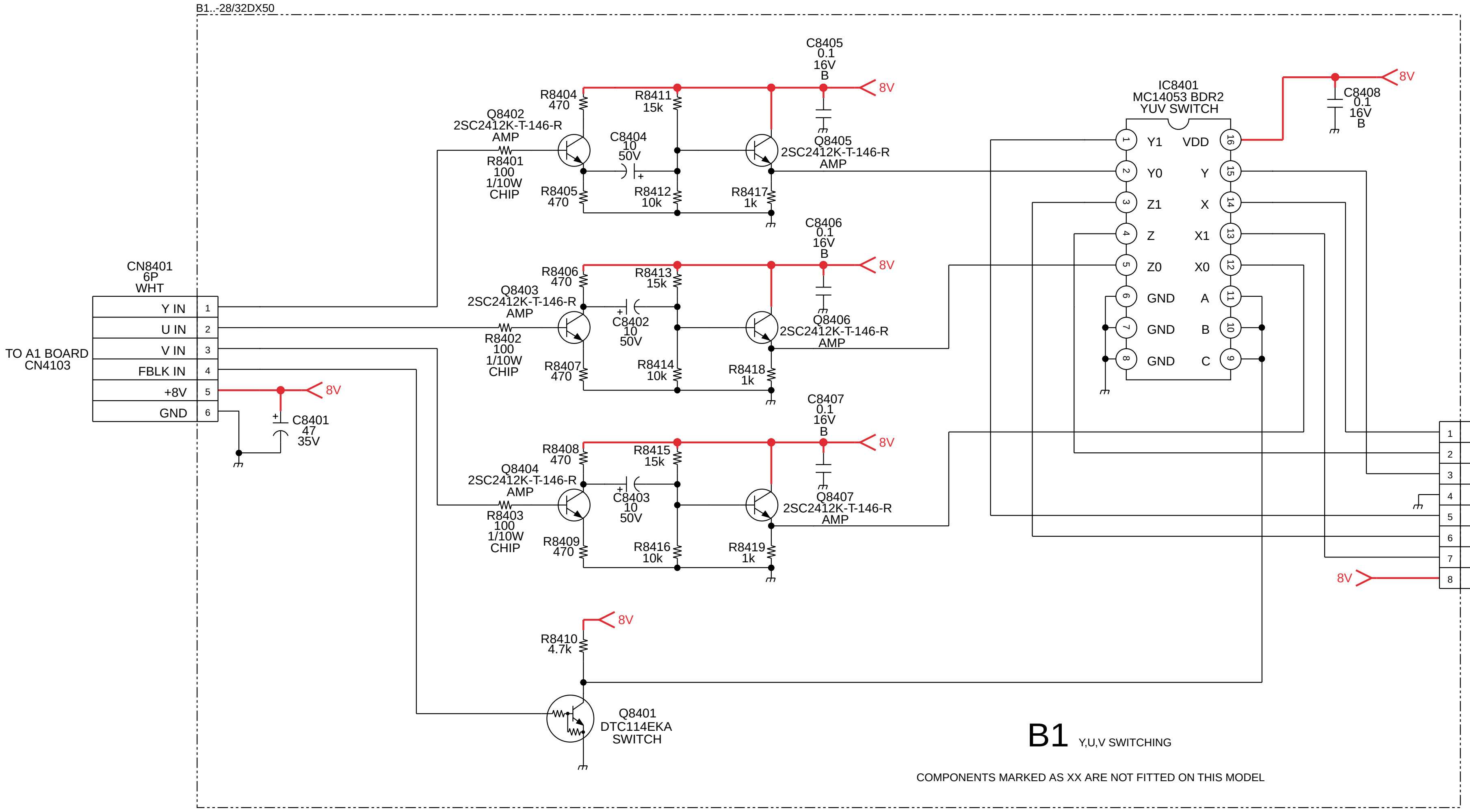
~ D3 Printed Wiring Board ~


1-681-781-20
(1-719-991-20)
F3
SONY
CN3603
CN3602
C3601
VD3601
R3601
C3602
T3603
T3602
C3603
T3601
T3604
F3601
FH3601
T5AH/250V
CN3601

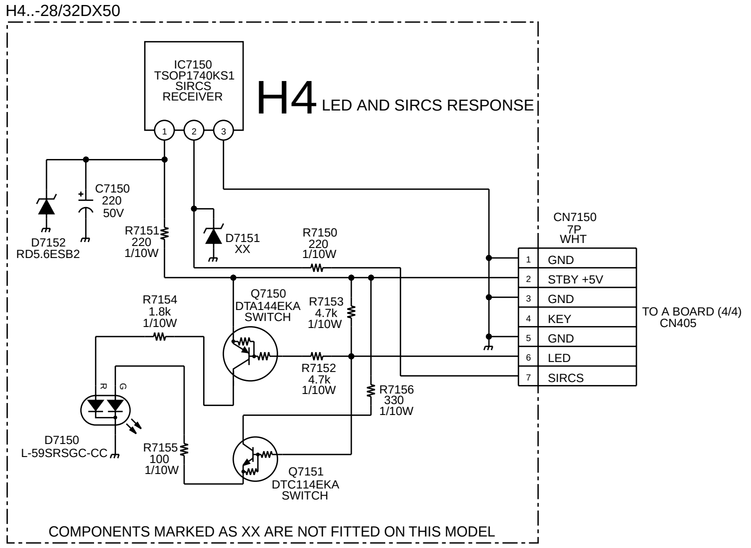
~ F3 Printed Wiring Board ~


F7
CN7601
1-689-237-11
(1-723-042-11)
AC OUT
AC IN CN7602
SONY
S7601

~ F7 Printed Wiring Board ~


B1..-28/32DX50
C8405
0.1
16V
B
8V
R8404
470
R8411
15k
Q8402
2SC2412K-T-146-R
AMP
C8404
10
50V
Q8405
2SC2412K-T-146-R
AMP
R8401
100
1/10W
CHIP
R8405
470
R8412
10k
R8417
1k
C8406
0.1
16V
B
R8406
470
R8413
15k
Q8403
2SC2412K-T-146-R
AMP
C8402
10
50V
Q8406
2SC2412K-T-146-R
AMP
R8402
100
1/10W
CHIP
R8407
470
R8414
10k
R8418
1k
C8407
0.1
16V
B
R8408
470
R8415
15k
Q8404
2SC2412K-T-146-R
AMP
C8403
10
50V
Q8407
2SC2412K-T-146-R
AMP
R8403
100
1/10W
CHIP
R8409
470
R8416
10k
R8419
1k
R8410
4.7k
Q8401
DTC114EKA
SWITCH
CN8401
6P
WHT
TO A1 BOARD
CN4103
1 Y IN
2 U IN
3 V IN
4 FBLK IN
5 +8V
6 GND
C8401
47
35V
IC8401
MC14053 BDR2
YUV SWITCH
1 Y1
2 Y0
3 Z1
4 Z
5 Z0
6 GND
7 GND
8 GND
16 VDD
15 Y
14 X
13 X1
12 X0
11 A
10 B
9 C
C8408
0.1
16V
B
CN8402
8P
1 V OUT
2 U OUT
3 Y OUT
4 GND
5 Y IN
6 U IN
7 V IN
8 +8V
TO A BOARD (4/4)
CN002
B1 Y,U,V SWITCHING
COMPONENTS MARKED AS XX ARE NOT FITTED ON THIS MODEL

~ B1 Board Schematic Diagram [Y,U,V Switching] ~


H4..-28/32DX50
IC7150
TSOP1740KS1
SIRCS
RECEIVER
H4 LED AND SIRCS RESPONSE
C7150
220
50V
D7152
RD5.6ESB2
R7151
220
1/10W
D7151
XX
R7150
220
1/10W
CN7150
7P
WHT
1 GND
2 STBY +5V
3 GND
4 KEY
5 GND
6 LED
7 SIRCS
TO A BOARD (4/4)
CN405
R7154
1.8k
1/10W
Q7150
DTA144EKA
SWITCH
R7153
4.7k
1/10W
R7152
4.7k
1/10W
R7156
330
1/10W
R
G
D7150
L-59SRSGC-CC
R7155
100
1/10W
Q7151
DTC114EKA
SWITCH
COMPONENTS MARKED AS XX ARE NOT FITTED ON THIS MODEL

~ H4 Board Schematic Diagram [Led and Sircs Response] ~

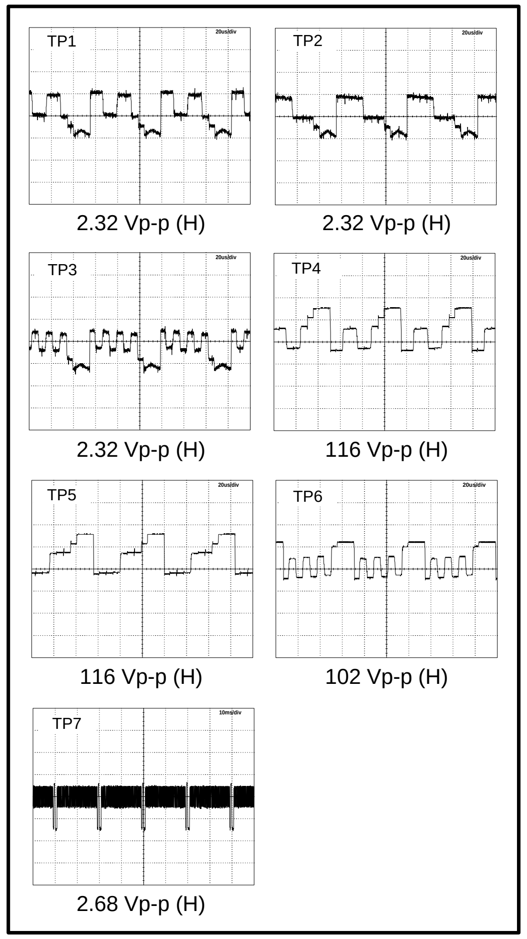
~ C Board Semiconductor Voltages ~

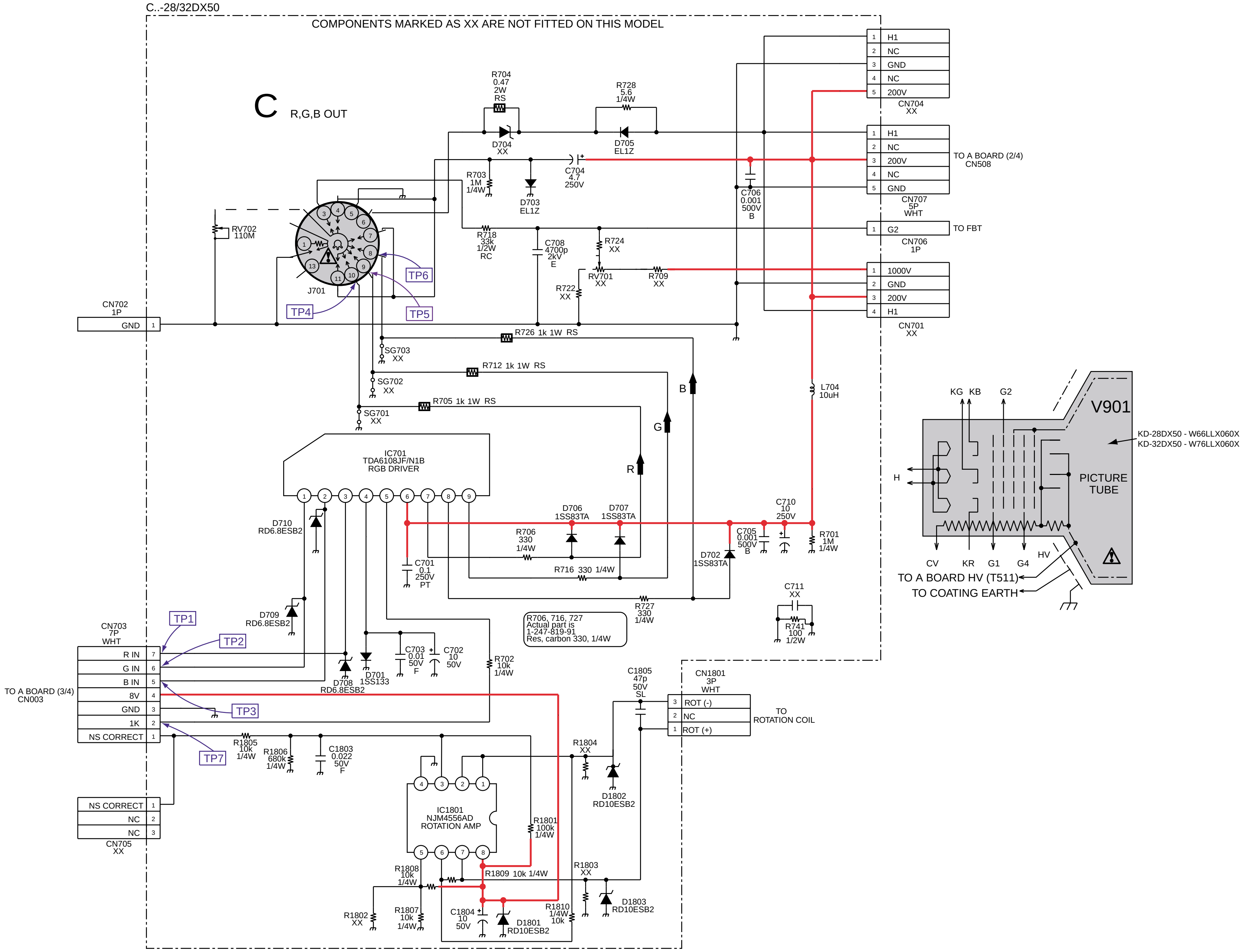
Ref	Anode	Cathode	Ref	Anode	Cathode	Ref	Anode	Cathode
D701	0.7	0	D706	131.8	199.4	D710	0	2.6
D702	154.4	199.4	D707	136.7	199.4	D1801	0	8.0
D703	0	0	D708	0	3.1	D1802	0	3.8
D705	0	0.7	D709	0	3.0	D1803	0	4.2

~ C Board IC Voltages ~

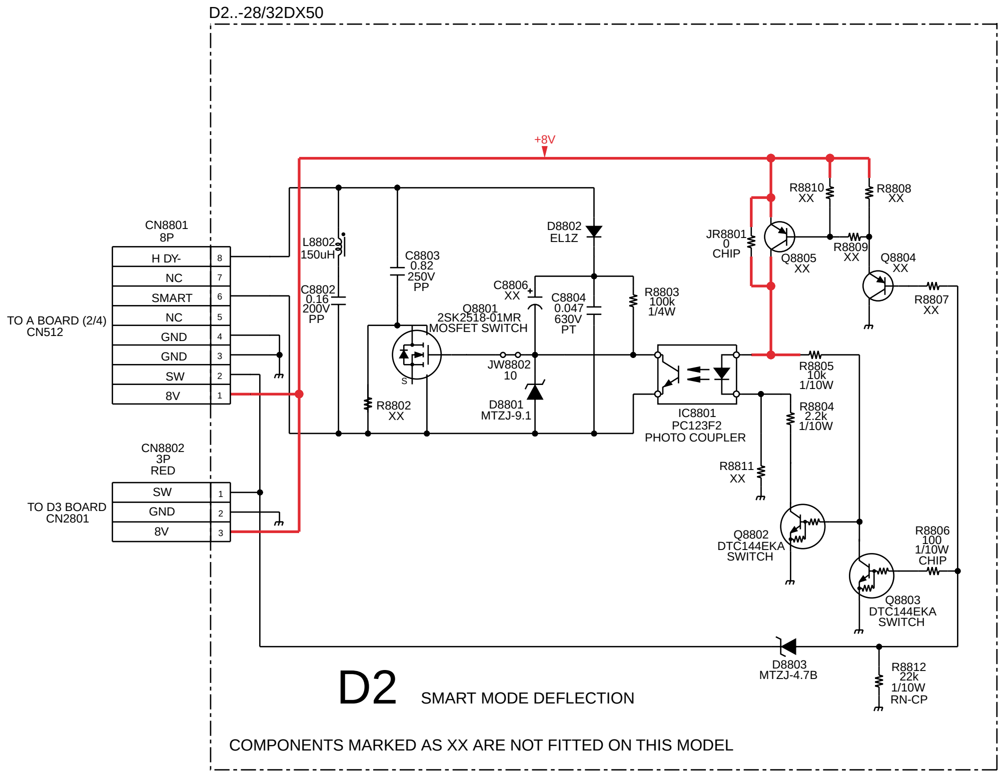
Ref No	Pin No	Voltage (V)	Ref No	Pin No	Voltage (V)
IC701	1	3.0	IC1801	1	3.8
	2	2.6		2	3.8
	3	3.1		3	3.8
	4	0.7		4	0
	5	6.3		5	4.0
	6	199		6	4.0
	7	133.5		7	4.2
	8	154.4		8	8.0
	9	136.2			

~ C Board Waveforms ~




C..-28/32DX50
COMPONENTS MARKED AS XX ARE NOT FITTED ON THIS MODEL
C R,G,B OUT
R704 0.47 2W RS
R728 5.6 1/4W
D704 XX
D705 EL1Z
R703 1M 1/4W
D703 EL1Z
C704 4.7 250V
C706 0.001 500V B
R718 33k 1/2W RC
C708 4700p 2kV E
R724 XX
RV701 XX
R709 XX
R722 XX
RV702 110M
J701
TP4
TP5
TP6
CN702 1P
GND
R726 1k 1W RS
SG703 XX
R712 1k 1W RS
SG702 XX
R705 1k 1W RS
SG701 XX
B
G
R
L704 10uH
IC701 TDA6108JF/N1B RGB DRIVER
D710 RD6.8ESB2
D706 1SS83TA
D707 1SS83TA
R706 330 1/4W
C701 0.1 250V PT
R716 330 1/4W
C705 0.001 500V B
C710 10 250V
R701 1M 1/4W
D702 1SS83TA
C711 XX
R741 100 1/2W
R727 330 1/4W
R706, 716, 727 Actual part is 1-247-819-91 Res, carbon 330, 1/4W
D709 RD6.8ESB2
TP1
TP2
TP3
TP7
CN703 7P WHT
R IN
G IN
B IN
8V
GND
1K
NS CORRECT
TO A BOARD (3/4) CN003
D708 RD6.8ESB2
D701 1SS133
C703 0.01 50V F
C702 10 50V
R702 10k 1/4W
R1805 10k 1/4W
R1806 680k 1/4W
C1803 0.022 50V F
NS CORRECT
NC
NC
CN705 XX
IC1801 NJM4556AD ROTATION AMP
R1801 100k 1/4W
R1804 XX
D1802 RD10ESB2
C1805 47p 50V SL
CN1801 3P WHT
ROT (-)
NC
ROT (+)
TO ROTATION COIL
R1803 XX
R1809 10k 1/4W
R1808 10k 1/4W
R1807 10k 1/4W
R1802 XX
C1804 10 50V
D1801 RD10ESB2
R1810 1/4W 10k
D1803 RD10ESB2
H1
NC
GND
NC
200V
CN704 XX
H1
NC
200V
NC
GND
CN707 5P WHT
TO A BOARD (2/4) CN508
G2
CN706 1P
TO FBT
1000V
GND
200V
H1
CN701 XX
KG KB G2
V901
KD-28DX50 - W66LLX060X
KD-32DX50 - W76LLX060X
PICTURE TUBE
H
CV KR G1 G4 HV
TO A BOARD HV (T511)
TO COATING EARTH

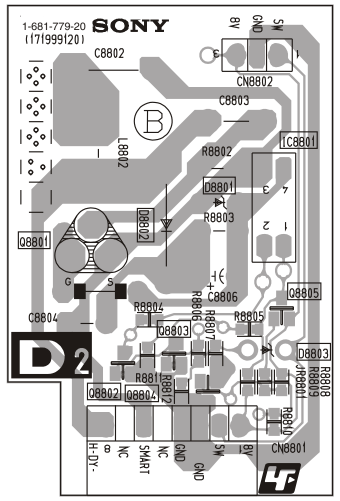
~ C Board Schematic Diagram [R-G-B Out] ~


D2..-28/32DX50
+8V
CN8801 8P
H DY-
NC
SMART
NC
GND
GND
SW
8V
TO A BOARD (2/4) CN512
L8802 150uH
C8802 0.16 200V PP
C8803 0.82 250V PP
Q8801 2SK2518-01MR MOSFET SWITCH
C8806 XX
C8804 0.047 630V PT
D8802 EL1Z
R8803 100k 1/4W
JW8802 10
D8801 MTZJ-9.1
R8802 XX
JR8801 0 CHIP
Q8805 XX
R8810 XX
R8808 XX
R8809 XX
Q8804 XX
R8807 XX
R8805 10k 1/10W
R8804 2.2k 1/10W
IC8801 PC123F2 PHOTO COUPLER
R8811 XX
Q8802 DTC144EKA SWITCH
Q8803 DTC144EKA SWITCH
R8806 100 1/10W CHIP
CN8802 3P RED
SW
GND
8V
TO D3 BOARD CN2801
D8803 MTZJ-4.7B
R8812 22k 1/10W RN-CP
D2 SMART MODE DEFLECTION
COMPONENTS MARKED AS XX ARE NOT FITTED ON THIS MODEL

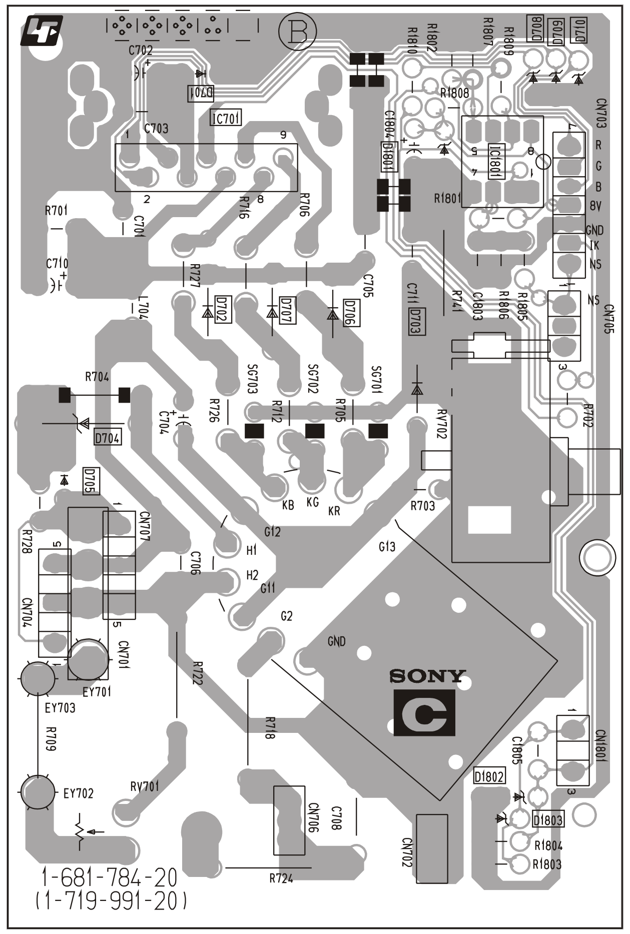
~ D2 Board Schematic Diagram [Smart Mode Deflection] ~

A B C D E F G H I J K L M N

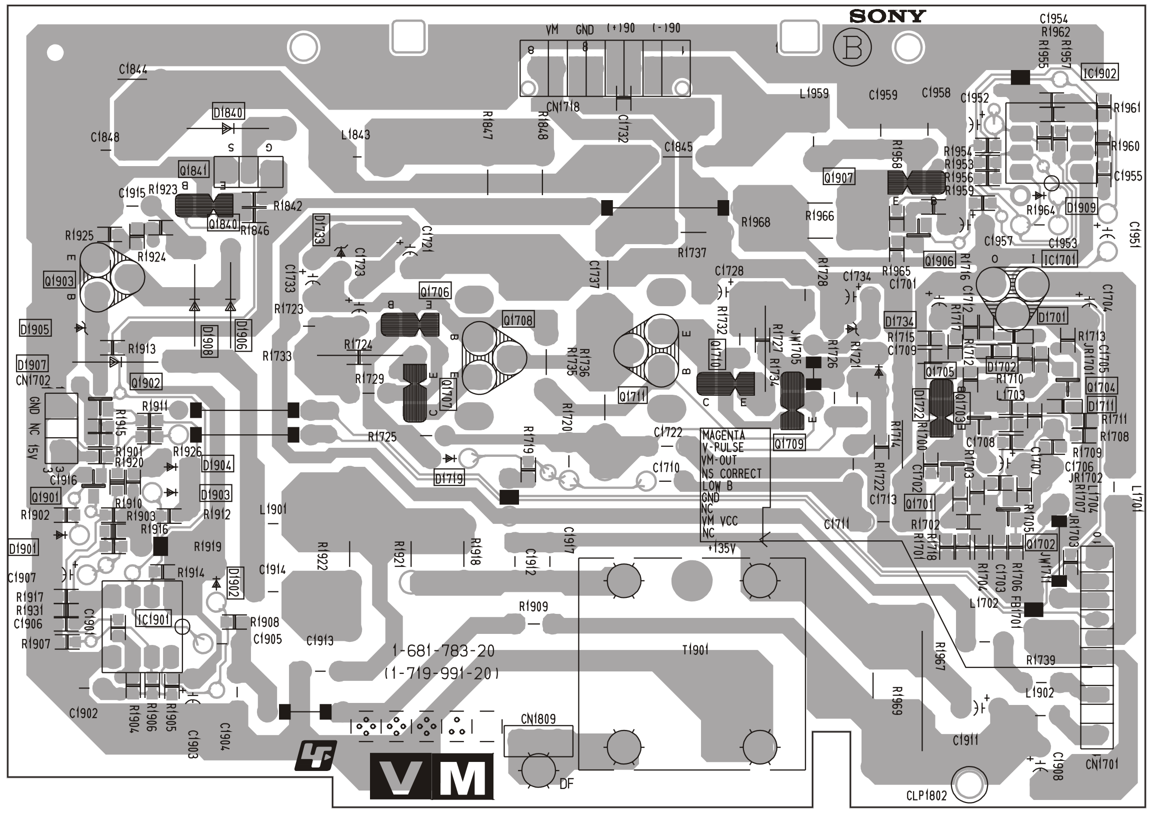
1 2 3 4 5 6 7 8 9 10 11


1-681-779-20
(1-719-991-20)
SONY
D2
CN8802
CN8801
8V
GND
SW
H-DY-
NC
SMART
NC
GND
SW
GND
8V

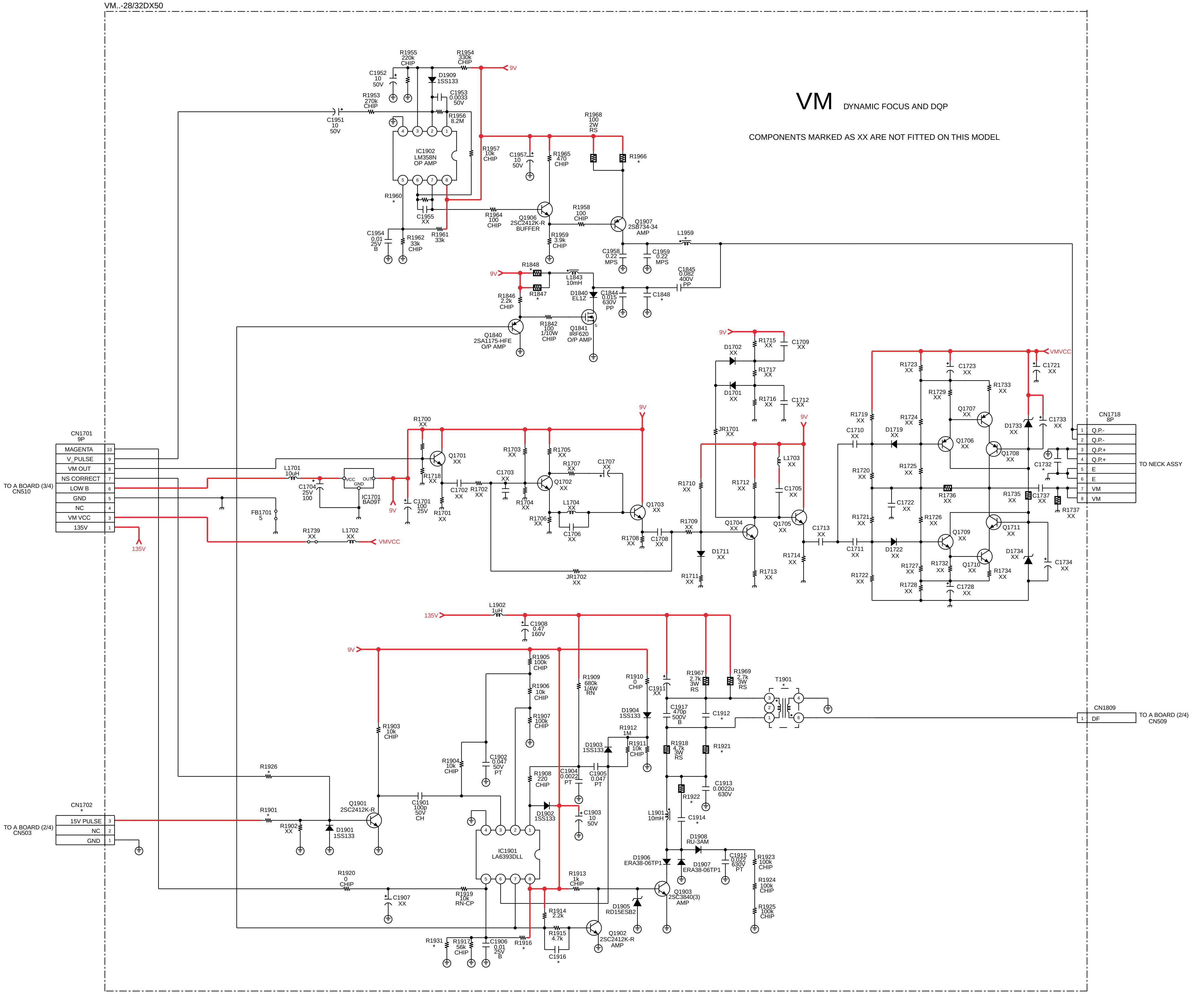
~ D2 Printed Wiring Board ~


1-681-784-20
(1-719-991-20)
SONY
C
CN703
CN705
CN704
CN701
CN707
CN706
CN702
CN1801

~ C Printed Wiring Board ~


SONY
1-681-783-20
(1-719-991-20)
V M
T1901
CN1701
CN1702
CN1718
CN1809
MAGENTA
V-PULSE
VM-OUT
NS CORRECT
LOW B
GND
NC
VM VCC
NC
+135V

~ VM Printed Wiring Board ~


VM..-28/32DX50
VM DYNAMIC FOCUS AND DQP
COMPONENTS MARKED AS XX ARE NOT FITTED ON THIS MODEL
CN1701 9P
MAGENTA
V_PULSE
VM OUT
NS CORRECT
LOW B
GND
NC
VM VCC
135V
TO A BOARD (3/4) CN510
CN1702
15V PULSE
NC
GND
TO A BOARD (2/4) CN503
CN1718 8P
Q.P.-
Q.P.-
Q.P.+
Q.P.+
E
E
VM
VM
TO NECK ASSY
CN1809
DF
TO A BOARD (2/4) CN509
IC1902 LM358N OP AMP
IC1701 BA09T
IC1901 LA6393DLL
Q1906 2SC2412K-R BUFFER
Q1907 2SB734-34 AMP
Q1840 2SA1175-HFE O/P AMP
Q1841 IRF620 O/P AMP
Q1901 2SC2412K-R
Q1902 2SC2412K-R AMP
Q1903 2SC3840(3) AMP
T1901
9V
135V
VMVCC

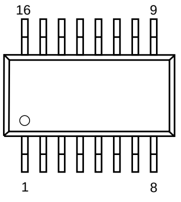
~ VM Board Difference Table~

Ref	KD-28DX50	KD-32DX50
C1732	0	0.01UF
C1848	0.0047UF	0.01UF
C1912	100PF	NOT FITTED
C1914	330PF	220PF
C1916	1UF	470PF
CN1702	NOT FITTED	PLUG, 3P
L1959	22MH	10MH
R1847	NOT FITTED	82
R1848	100	82
R1901	NOT FITTED	47K
R1916	4.7K	3.9K
R1921	6.8K	4.7K
R1922	2.2K	1.5K
R1926	0	NOT FITTED
R1931	47K	39K
R1960	10K	6.8K
R1966	NOT FITTED	100
T1901	1-433-489-11 Transformer, Ferrite (HDT)	1-433-849-12 Transformer, Ferrite (DFT)

~ VM Board Schematic Diagram [Dynamic Focus and DQP] ~

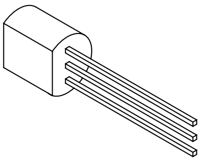
5-4. SEMICONDUCTORS

CXA1875AM-T4

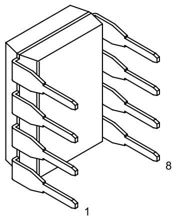


(TOP VIEW)

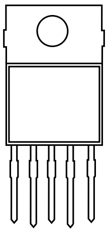
L78L33ABZ-AP



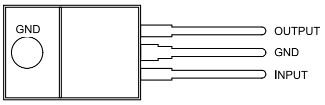
LA6393DLL



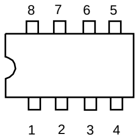
LA6500



LM2940T-9.0

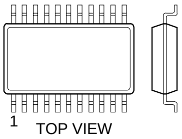

GND
OUTPUT
GND
INPUT

LM358N
LM393DT



(TOP VIEW)

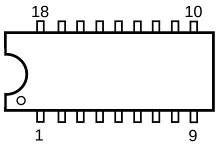
M24128-BWMN6T
M24C32-WMN6T(A)
MC14053 BDR2



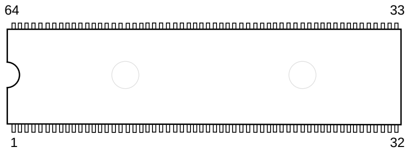
TOP VIEW

8 PIN SOP

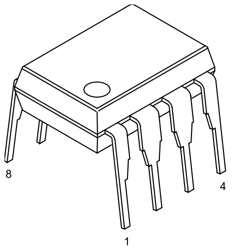
MCZ3001D



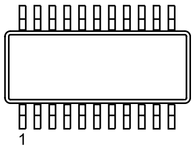
MSP3411G-PP-B8V3



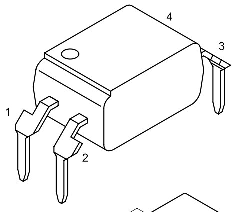
NJM082M
NJM4556AD



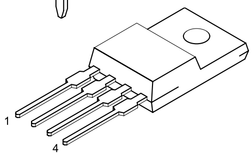
PCF8591T
PCF8593/T118



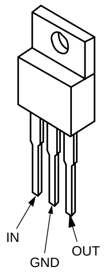
PC123F2



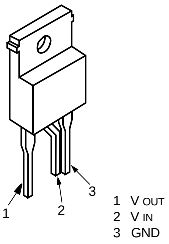
PQ05RF11
PQ3RF33



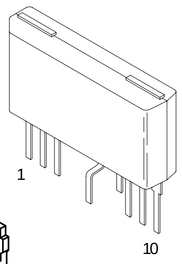
BA09T
SE-012N-LF4



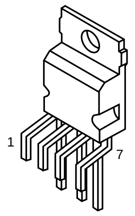
SE-135N
SE135N-LF4


1
2
3
1 V OUT
2 V IN
3 GND

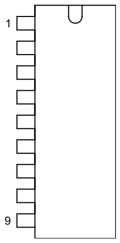
STR-L474-LF429



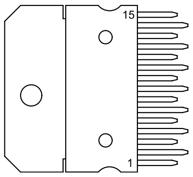
STV9379



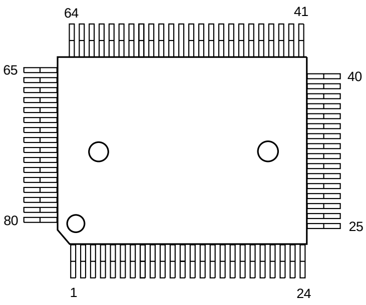
TDA6108JF/NIB



TDA7495S

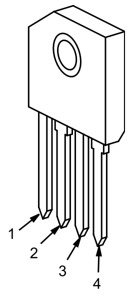


TDA9394H/N1/5/0716

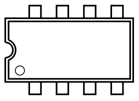

64
41
65
40
80
25
1
24

(MARKING SIDE VIEW)

TLP721(D4-G)

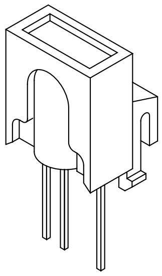


TOP209P

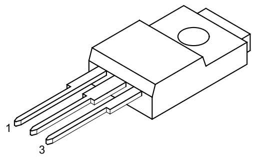


(TOP VIEW)

TSOP1740KS

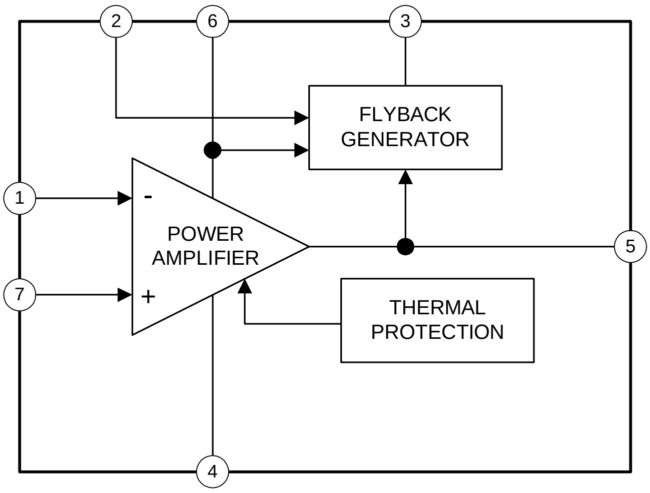


UPC2405AHF

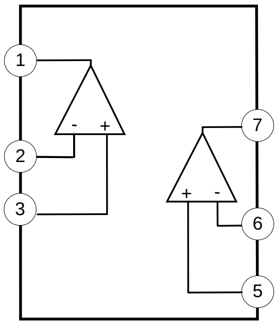


5-5. IC BLOCK DIAGRAMS

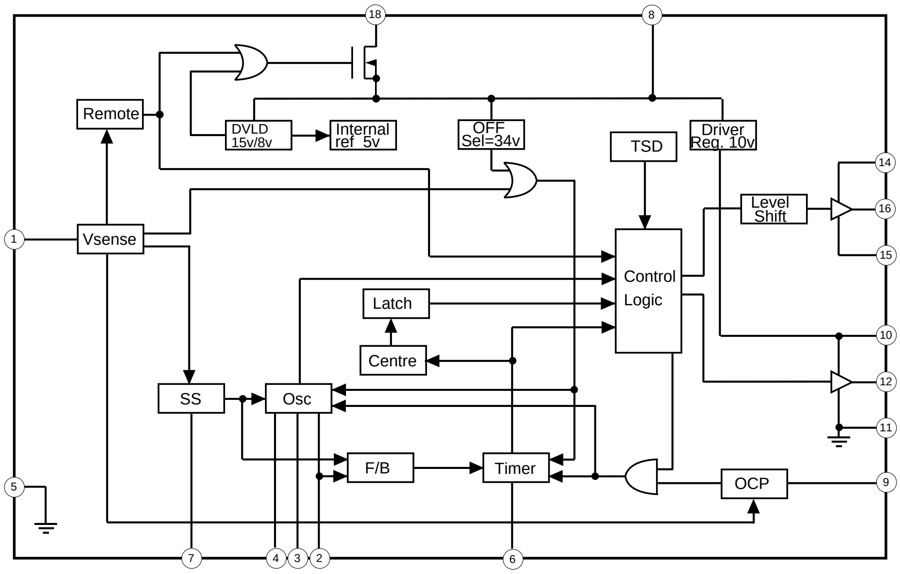
A BOARD IC501 STV9379A


2
6
3
FLYBACK GENERATOR
1
-
POWER AMPLIFIER
7
+
5
THERMAL PROTECTION
4

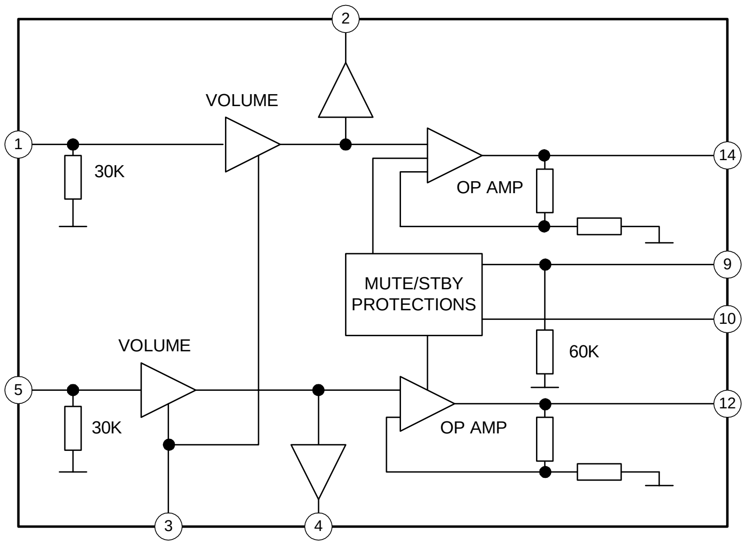
A BOARD IC401/IC531 LM393DT



A BOARD IC601 MCZ3001D


18
8
Remote
DVLD 15v/8v
Internal ref 5v
OFF Sel=34v
TSD
Driver Reg. 10v
14
Level Shift
16
15
1
Vsense
Control Logic
Latch
10
Centre
12
SS
Osc
11
F/B
Timer
OCP
9
5
7
4
3
2
6

A BOARD IC1201 TDA7495S


2
VOLUME
1
30K
14
OP AMP
9
MUTE/STBY PROTECTIONS
10
60K
VOLUME
5
12
30K
OP AMP
3
4

SECTION 6
EXPLODED VIEWS

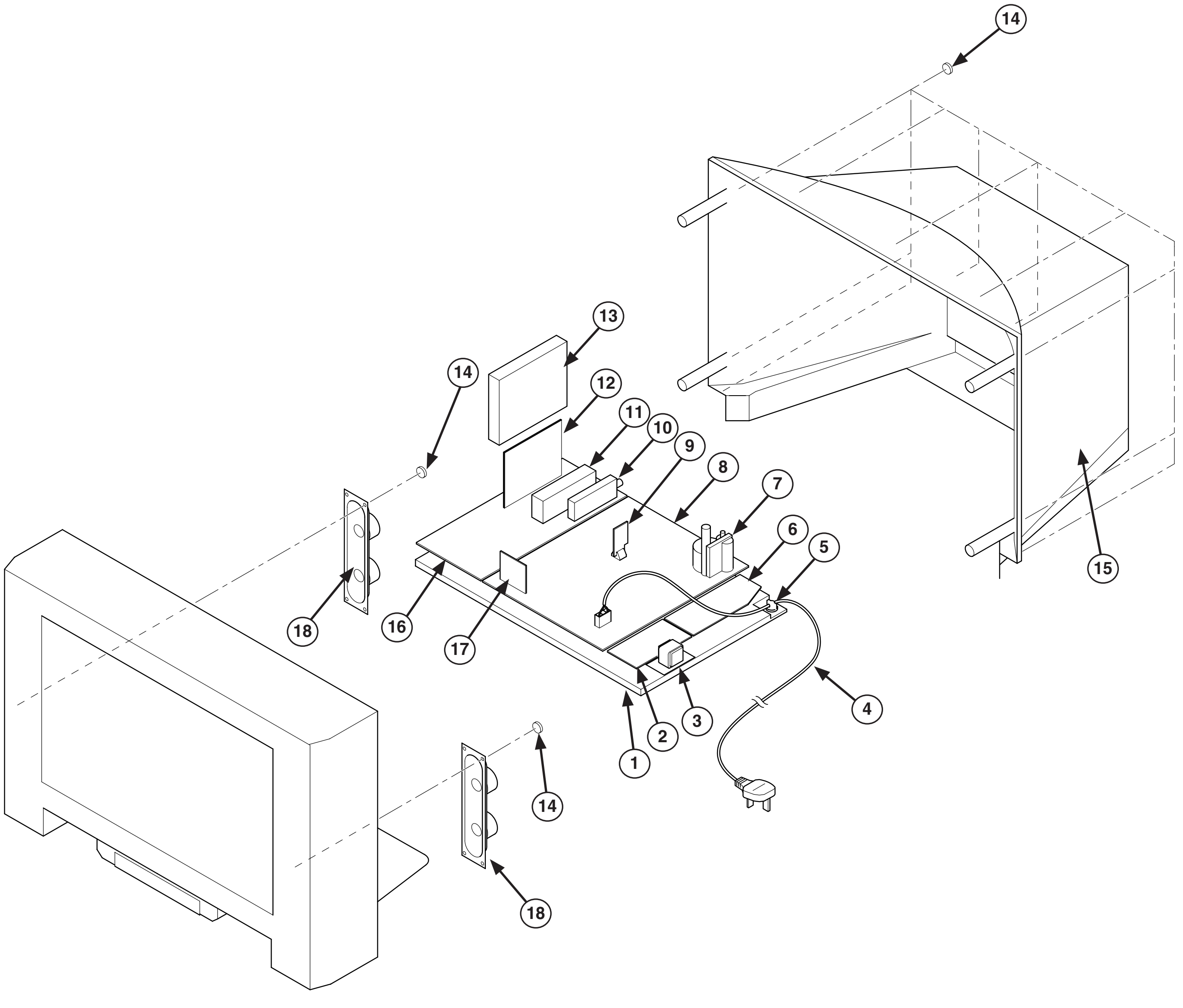
NOTE :

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remarks column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

Note : Les composants indentifies par une trame et par une marque ⚠ sonte d'une importance critique pour la securite. Ne les remplacer que par des pieces du numero specifie.

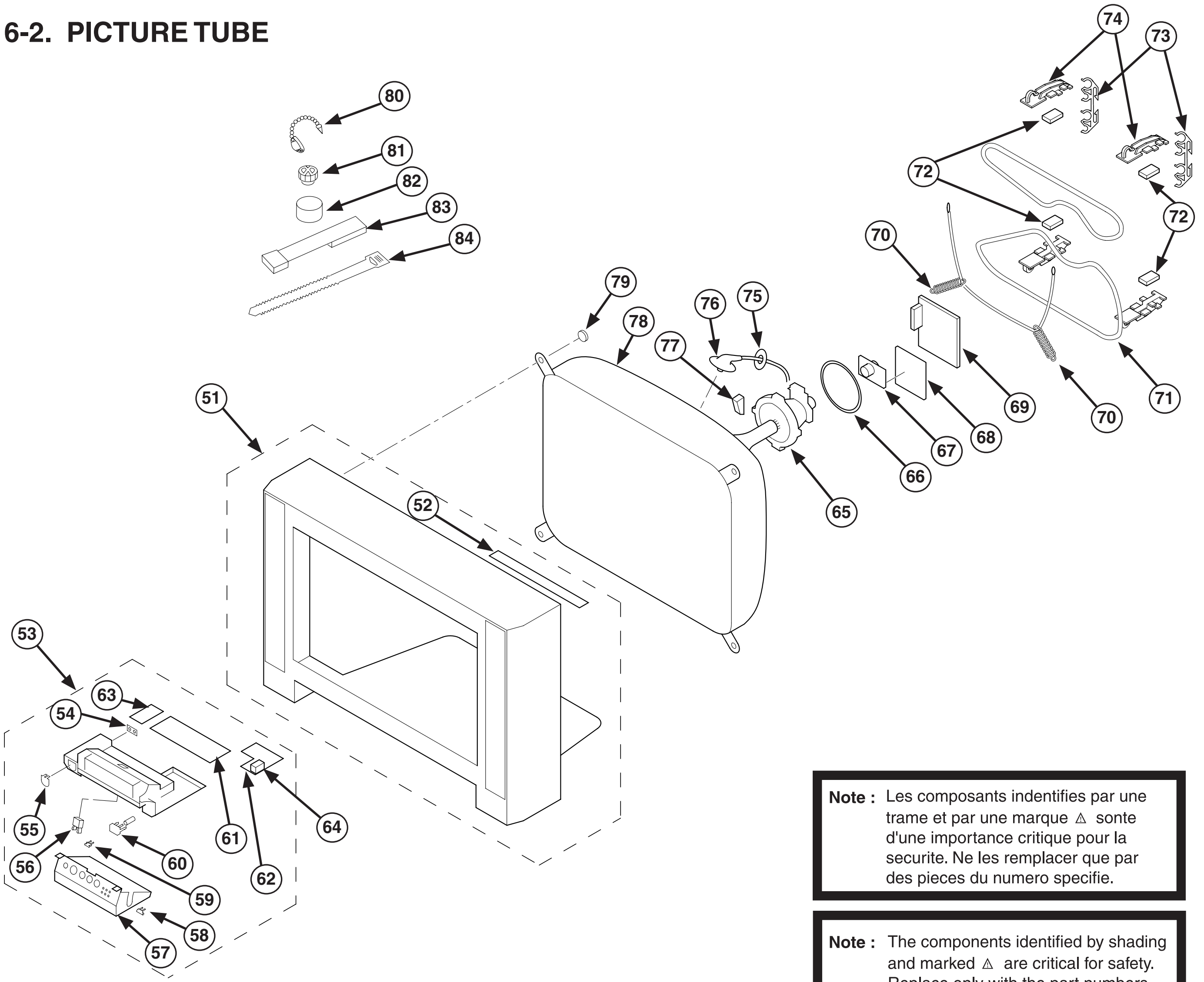
Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

6-1. CHASSIS



REF.NO.		PART.NO	DESCRIPTION	REMARK
1		*4-095-435-01	BRACKET, MAIN	
2		*A-1640-431-A	D3 BOARD, COMPLETE	
3	⚠	*1-424-733-11	COIL, PFC CHOKE 65MMH	
4	⚠	*1-776-204-11	CORD, POWER (FILTER)	
5		*4-202-531-01	AC CORD LOCK (SC)	
6		*A-1624-109-A	F3 BOARD, COMPLETE	
7	⚠	1-453-308-41	TRANSFORMER ASSY, FLYBACK (NX-4521//Z2B4)	
8		*A-1632-947-A	A BOARD, COMPLETE (KD-28DX50)	
		*A-1632-948-A	A BOARD, COMPLETE (KD-32DX50)	
9		*A-1642-285-A	D2 BOARD, COMPLETE (KD-28DX50)	
		*A-1642-281-A	D2 BOARD, COMPLETE (KD-32DX50)	
10		1-693-557-14	FRONTEND (TUNER+IF)	
11		8-598-626-00	TUNER UNIT, DIGITAL BTD-DU606	
12		*A-1405-528-A	N BOARD, COMPLETE	
13		*4-206-219-01	SHIELD	
14		4-039-358-01	REAR COVER SCREWS	
15		*4-096-787-01	REAR COVER (KD-28DX50)	
		*4-096-782-01	REAR COVER (KD-32DX50)	
16		*A-1405-526-A	A1 BOARD, COMPLETE	
17		*A-1405-524-A	B1 BOARD, COMPLETE	
18		1-529-408-11	SPEAKER (4.2X24CM)	

6-2. PICTURE TUBE



Note : Les composants indentifies par une trame et par une marque ⚠ sonte d'une importance critique pour la securite. Ne les remplacer que par des pieces du numero specifie.

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

REF.NO.		PART.NO	DESCRIPTION	REMARK
51		*X-4041-924-1	BEZNET ASSY (KD-28DX50)	52
		*X-4041-926-1	BEZNET ASSY (KD-32DX50)	52
52		4-203-128-71	SHEET, BLOTTING	
53		*A-1605-980-A	FRONT CONTROL ASSY	54-64
54		4-205-464-12	GUIDE LIGHT	
55		4-205-463-12	WINDOW, ORNAMENTAL	
56		4-047-464-01	CATCHER, PUSH	
57		*4-205-460-12	BRACKET, CONTROL	
58		4-205-682-01	DAMPER	
59		4-202-555-01	SHAFT, DOOR	
60		4-205-462-12	BUTTON, POWER	
61		*A-1405-800-A	H7 BOARD, COMPLETE	
62		*A-1405-801-A	F7 BOARD, COMPLETE	
63		*A-1405-799-A	H4 BOARD, COMPLETE	
64	⚠	*1-571-433-21	SWITCH, PUSH (AC POWER)	
65	⚠	8-451-521-31	DEFLECTION YOKE (Y28RVC3-L2)(KD-28DX50)	
	⚠	1-451-520-31	DEFLECTION YOKE (Y32RVC3) (KD-32DX50)	
66		1-452-896-11	COIL, NA ROTATION (RT200)	
67	⚠	*8-453-011-11	NECK ASSEMBLY (NA299-M)	
68		*A-1645-050-A	VM BOARD, COMPLETE (KD-28DX50)	

REF.NO.		PART.NO	DESCRIPTION	REMARK
68		*A-1644-049-A	VM BOARD, COMPLETE (KD-32DX50)	
69		*A-1638-156-A	C BOARD, COMPLETE	
70		4-200-433-01	SPRING, EXTENSION	
71	⚠	1-416-466-21	COIL, DEMAGNETIC (KD-28DX50)	
	⚠	1-416-769-11	COIL, DEMAGNETIC (KD-32DX50)	
72		4-203-390-71	CUSHION, DGC	
73		4-089-227-02	DGC CLIP	
74		4-202-463-01	CLIP, DGC (25″)	
75		4-202-693-01	HOLDER, HV CABLE	
76	⚠	1-251-946-11	CAP ASSY, HIGH VOLTAGE	
77		4-203-658-01	SPACER, DY	
78	⚠	8-735-099-05	PICTURE TUBE (W66LLX060X)(KD-28DX50)	
	⚠	8-735-079-05	PICTURE TUBE (W76LLX060X)(KD-32DX50)	
79		4-036-188-01	SCREW, SELF TAPPING (KD-28DX50)	
		4-204-225-01	PT-SCREW (KD-32DX50)	
80		4-308-870-00	CLIP, LEAD WIRE	
81		1-452-094-00	MAGNET, ROTATABLE DISK; 15MM Ø	
82		1-452-032-00	MAGNET, DISK; 10MM Ø	
83		X-4387-214-1	PERMALLOY, CORRECTION	
84		3-701-007-00	BAND, BINDING	

SECTION 7
ELECTRICAL PARTS LIST

PARTS LISTING TABLE OF CONTENTS

Page

C BOARD COMPLETE Parts List : 49

VM BOARD COMMON Parts List : Parts common to all models in this manual 49

VM BOARD VARIANT Parts List : Parts that belong only to the model specified

Model

(KD-28DX50) : 50

(KD-32DX50) : 51

D3 BOARD COMPLETE Parts List : 51

F3 BOARD COMPLETE Parts List : 51

B1 BOARD COMPLETE Parts List : 51

D2 BOARD COMPLETE Parts List : 52

A1 BOARD COMPLETE Parts List : 52

A BOARD COMMON Parts List : Parts common to all models in this manual 55

A BOARD VARIANT Parts List : Parts that belong only to the model specified

Model

(KD-28DX50) : 63

(KD-32DX50) : 63

H4 BOARD COMPLETE Parts List : 64

H7 BOARD COMPLETE Parts List : 64

F7 BOARD COMPLETE Parts List : 64

MISCELLANEOUS : 65

ACCESSORIES AND PACKAGING MATERIALS : 65

REMOTE COMMANDER: 65

Note : Refer to the designated variant parts list when seeking a part indicated by an asterisk (*)
Parts indicated (XX) on the Schematic Diagram are not used in this model and therefore do not appear in the Parts List.

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

* A-1638-156-A C Board, Complete

< CAPACITOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
C701	1-136-189-00	MYLAR 0.1UF	10.00% 250V
C702	1-126-964-11	ELECT 10UF	20.00% 50V
C703	1-101-004-00	CERAMIC 0.01UF	50V
C704	1-107-651-11	ELECT 4.7UF	20.00% 250V
C705	1-162-318-11	CERAMIC 0.001UF	10.00% 500V
C706	1-162-318-11	CERAMIC 0.001UF	10.00% 500V
C708	1-115-350-51	CERAMIC 0.0047UF	2KV
C710	1-107-652-11	ELECT 10UF	20.00% 250V
C1803	1-101-005-00	CERAMIC 0.022UF	50V
C1804	1-126-964-11	ELECT 10UF	20.00% 50V
C1805	1-101-880-00	CERAMIC 47PF	5.00% 50V

< CONNECTOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
CN702	1-695-915-11	TAB (CONTACT)	
CN703	*1-816-978-51	PLUG, CONNECTOR 7P	
CN706	1-695-915-11	TAB (CONTACT)	
CN707	*1-816-976-51	PLUG, CONNECTOR 5P	
CN1801	*1-816-974-51	PLUG, CONNECTOR 3P	

< DIODE >

REF.NO.	PART.NO	DESCRIPTION	REMARK
D701	8-719-991-33	DIODE 1SS133T-77	
D702	8-719-901-83	DIODE 1SS83	
D703	8-719-302-43	DIODE EL1Z	
D705	8-719-302-43	DIODE EL1Z	
D706	8-719-901-83	DIODE 1SS83	
D707	8-719-901-83	DIODE 1SS83	
D708	8-719-109-97	DIODE RD6.8ESB2	
D709	8-719-109-97	DIODE RD6.8ESB2	
D710	8-719-109-97	DIODE RD6.8ESB2	
D1801	8-719-110-17	DIODE RD10ESB2	
D1802	8-719-110-17	DIODE RD10ESB2	
D1803	8-719-110-17	DIODE RD10ESB2	

< IC >

REF.NO.	PART.NO	DESCRIPTION	REMARK
IC701	8-759-562-43	IC TDA6108JF/N1B	
IC1801	8-759-356-16	IC NJM4556AD	

< COIL >

REF.NO.	PART.NO	DESCRIPTION	REMARK
L704	1-414-183-41	INDUCTOR 10UH	

< RESISTOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
R701	1-247-903-00	CARBON 1M 5%	1/4W
R702	1-249-429-11	CARBON 10K 5%	1/4W
R703	1-247-903-00	CARBON 1M 5%	1/4W
R704	1-216-365-00	METAL OXIDE 0.47 5%	2W
R705	1-215-869-11	METAL OXIDE 1K 5%	1W
R706	1-249-411-11	CARBON 330 5%	1/4W
R712	1-215-869-11	METAL OXIDE 1K 5%	1W
R716	1-249-411-11	CARBON 330 5%	1/4W
R718	1-202-814-11	SOLID 33K 10%	1/2W
R726	1-215-869-11	METAL OXIDE 1K 5%	1W
R727	1-249-411-11	CARBON 330 5%	1/4W
R728	1-249-390-11	CARBON 5.6 5%	1/4W
R741	1-202-549-00	SOLID 100 20%	1/2W
R1801	1-249-441-11	CARBON 100K 5%	1/4W
R1805	1-249-429-11	CARBON 10K 5%	1/4W
R1806	1-247-899-11	CARBON 680K 5%	1/4W
R1807	1-249-429-11	CARBON 10K 5%	1/4W
R1808	1-249-429-11	CARBON 10K 5%	1/4W
R1809	1-249-429-11	CARBON 10K 5%	1/4W
R1810	1-249-429-11	CARBON 10K 5%	1/4W

< RESISTOR VARIABLE >

REF.NO.	PART.NO	DESCRIPTION	REMARK
RV702	1-241-656-11	RES, ADJ, METAL FILM 110M	

< SOCKET >

REF.NO.	PART.NO	DESCRIPTION	REMARK
J701 ⚠	1-251-732-11	SOCKET, CRT	

* A-1645-050-A VM Board, Complete KD-28DX50
* A-1645-049-A VM Board, Complete KD-32DX50

VM Board, Common Parts

REF.NO.	PART.NO	DESCRIPTION	REMARK
	*4-374-846-01	COVER, CAPACITOR, CAP TYPE	
	4-382-854-01	SCREW (M3X8), P, SW (+)	

< CAPACITOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
C1701	1-104-665-11	ELECT 100UF	20.00% 25V
C1704	1-104-665-11	ELECT 100UF	20.00% 25V
C1844	1-129-716-00	FILM 0.015UF	5.00% 630V
C1845	1-129-725-00	FILM 0.082UF	5.00% 400V
C1901	1-162-927-11	CERAMIC CHIP 100PF	5.00% 50V
C1902	1-137-374-11	MYLAR 0.047UF	5.00% 50V
C1903	1-126-964-11	ELECT 10UF	20.00% 50V
C1904	1-130-475-00	MYLAR 0.0022UF	5.00% 50V
C1905	1-137-374-11	MYLAR 0.047UF	5.00% 50V
C1906	1-162-970-11	CERAMIC CHIP 0.01UF	10.00% 25V
C1908	1-109-954-11	ELECT 0.47UF	20.00% 160V
C1913	1-129-898-00	FILM 0.0022UF	5.00% 630V
C1915	1-136-205-11	MYLAR 0.022UF	5.00% 630V
C1917	1-102-228-00	CERAMIC 470PF	10.00% 500V
C1951	1-126-964-11	ELECT 10UF	20.00% 50V
C1952	1-126-964-11	ELECT 10UF	20.00% 50V
C1953	1-137-367-11	MYLAR 0.0033UF	5.00% 50V
C1954	1-162-970-11	CERAMIC CHIP 0.01UF	10.00% 25V
C1957	1-126-964-11	ELECT 10UF	20.00% 50V
C1958	1-136-169-00	FILM 0.22UF	5.00% 50V

REF.NO.	PART.NO	DESCRIPTION			REMARK
C1959	1-136-169-00	FILM	0.22UF	5.00%	50V
		< CONNECTOR >			
CN1701	1-691-771-11	PLUG (MICRO CONNECTOR) 9P			
CN1718	*1-770-723-11	CONNECTOR, BOARD TO BOARD 8P			
CN1809	1-695-915-11	TAB (CONTACT)			
		< DIODE >			
D1840	8-719-302-43	DIODE EL1Z			
D1901	8-719-991-33	DIODE 1SS133T-77			
D1902	8-719-991-33	DIODE 1SS133T-77			
D1903	8-719-991-33	DIODE 1SS133T-77			
D1904	8-719-991-33	DIODE 1SS133T-77			
D1905	8-719-110-41	DIODE RD15ESB2			
D1906	8-719-970-87	DIODE ERA38-06			
D1907	8-719-970-87	DIODE ERA38-06			
D1908	8-719-300-33	DIODE RU-3AM			
D1909	8-719-991-33	DIODE 1SS133T-77			
		< FERRITE BEAD >			
FB1701	1-535-303-00	LEAD, JUMPER (5.0MM)			
		< IC >			
IC1701	8-759-394-36	IC BA09T			
IC1901	8-759-659-67	IC LA6393DLL			
IC1902	8-759-008-70	IC LM358N			
		< COIL >			
L1701	1-414-183-41	INDUCTOR	10UH		
L1843	1-406-989-21	INDUCTOR	10MH		
L1901	1-406-677-11	INDUCTOR	10MH		
L1902	1-414-177-11	INDUCTOR	1UH		
		< TRANSISTOR >			
Q1840	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q1841	8-729-926-76	TRANSISTOR IRF620			
Q1901	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R			
Q1902	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R			
Q1903	8-729-043-95	TRANSISTOR 2SC3840(3)			
Q1906	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R			
Q1907	8-729-140-97	TRANSISTOR 2SB734-34			
		< RESISTOR >			
R1842	1-216-809-11	METAL CHIP	100	5%	1/10W
R1846	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R1903	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1904	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1905	1-216-845-11	METAL CHIP	100K	5%	1/10W
R1906	1-216-833-11	METAL CHIP	10K	5%	1/10W

REF.NO.	PART.NO	DESCRIPTION			REMARK
R1907	1-216-845-11	METAL CHIP	100K	5%	1/10W
R1908	1-216-813-11	METAL CHIP	220	5%	1/10W
R1909	1-215-489-00	METAL	680K	1%	1/4W
R1910	1-216-864-11	SHORT CHIP	0		
R1911	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1912	1-216-857-11	METAL CHIP	1M	5%	1/10W
R1913	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1914	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R1915	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R1917	1-216-842-11	METAL CHIP	56K	5%	1/10W
R1918	1-215-921-11	METAL OXIDE	4.7K	5%	3W
R1919	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1920	1-216-864-11	SHORT CHIP	0		
R1923	1-216-845-11	METAL CHIP	100K	5%	1/10W
R1924	1-216-845-11	METAL CHIP	100K	5%	1/10W
R1925	1-216-845-11	METAL CHIP	100K	5%	1/10W
R1953	1-216-850-11	METAL CHIP	270K	5%	1/10W
R1954	1-216-851-11	METAL CHIP	330K	5%	1/10W
R1955	1-216-849-11	METAL CHIP	220K	5%	1/10W
R1956	1-218-463-11	RES-CHIP	8.2M	5%	1/10W
R1957	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1958	1-216-809-11	METAL CHIP	100	5%	1/10W
R1959	1-216-828-11	METAL CHIP	3.9K	5%	1/10W
R1961	1-216-839-11	METAL CHIP	33K	5%	1/10W
R1962	1-216-839-11	METAL CHIP	33K	5%	1/10W
R1964	1-216-809-11	METAL CHIP	100	5%	1/10W
R1965	1-216-817-11	METAL CHIP	470	5%	1/10W
R1967	1-216-483-11	METAL OXIDE	2.7K	5%	3W
R1968	1-215-886-11	METAL OXIDE	100	5%	2W
R1969	1-216-483-11	METAL OXIDE	2.7K	5%	3W

VM Board, Variant Parts KD-28DX50

		< CAPACITOR >			
C1732	1-216-295-91	SHORT CHIP	0		
C1848	1-136-347-11	FILM	0.0047UF	5.00%	630V
C1912	1-162-117-00	CERAMIC	100PF	10.00%	500V
C1914	1-102-030-00	CERAMIC	330PF	10.00%	500V
C1916	1-127-573-11	CERAMIC CHIP	1UF	10.00%	16V
		< CONNECTOR >			
CN1702	NOT FITTED				
		< COIL >			
L1959	1-406-679-11	INDUCTOR	22MH		
		< RESISTOR >			
R1847	NOT FITTED				
R1848	1-215-911-11	METAL OXIDE	100	5%	3W
R1901	NOT FITTED				

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

REF.NO.	PART.NO	DESCRIPTION	REMARK
R1916	1-216-667-11	METAL CHIP 4.7K 0.5% 1/10W	
R1921	1-215-922-11	METAL OXIDE 6.8K 5% 3W	
R1922	1-215-919-11	METAL OXIDE 2.2K 5% 3W	
R1926	1-216-295-91	SHORT CHIP 0	
R1931	1-216-841-11	METAL CHIP 47K 5% 1/10W	
R1960	1-216-833-11	METAL CHIP 10K 5% 1/10W	
R1966	NOT FITTED		
		< TRANSFORMER >	
T1901	1-433-489-11	TRANSFORMER, FERRITE (HDT)	

VM Board, Variant Parts KD-32DX50

		< CAPACITOR >	
C1732	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V	
C1848	1-136-601-11	FILM 0.01UF 5.00% 630V	
C1912	NOT FITTED		
C1914	1-102-244-00	CERAMIC 220PF 10.00% 500V	
C1916	1-162-962-11	CERAMIC CHIP 470PF 10.00% 50V	
		< CONNECTOR >	
CN1702	*1-816-974-51	PLUG, CONNECTOR 3P	
		< COIL >	
L1959	1-406-677-11	INDUCTOR 10MH	
		< RESISTOR >	
R1847	1-216-474-11	METAL OXIDE 82 5% 3W	
R1848	1-216-474-11	METAL OXIDE 82 5% 3W	
R1901	1-216-089-91	RES-CHIP 47K 5% 1/10W	
R1916	1-216-665-11	METAL CHIP 3.9K 0.5% 1/10W	
R1921	1-215-921-11	METAL OXIDE 4.7K 5% 3W	
R1922	1-215-918-00	METAL OXIDE 1.5K 5% 3W	
R1926	NOT FITTED		
R1931	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R1960	1-218-867-11	METAL CHIP 6.8K 0.5% 1/10W	
R1966	1-215-886-11	METAL OXIDE 100 5% 2W	
		< TRANSFORMER >	
T1901	1-433-849-12	TRANSFORMER, FERRITE (HDT)	

* A-1640-431-A D3 Board, Complete

		< CAPACITOR >	
C2802	1-126-965-91	ELECT 22UF 20.00% 50V	
		< CONNECTOR >	
CN2801	*1-816-980-71	PLUG, CONNECTOR 3P	
CN2802	*1-785-270-12	PIN, DY CONNECTOR (PC BOARD)	
CN2803	*1-580-798-11	CONNECTOR PIN (DY) 6P	

REF.NO.	PART.NO	DESCRIPTION	REMARK
		< DIODE >	
D2801	8-719-991-33	DIODE 1SS133T-77	
		< TRANSISTOR >	
Q2801	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q2802	8-729-119-78	TRANSISTOR 2SC2785-HFE	
		< RESISTOR >	
R2801	1-249-421-11	CARBON 2.2K 5% 1/4W	
R2802	1-249-421-11	CARBON 2.2K 5% 1/4W	
		< RELAY >	
RY2801	1-755-172-11	RELAY	
		< TRANSFORMER >	
T2801	1-419-090-11	COIL, CHOKE (100UH)	

* A-1624-109-A F3 Board, Complete (Digital)

		< CAPACITOR >	
C3601	1-113-924-11	CERAMIC 0.0047UF 20.00% 250V	
C3602 ⚠	1-137-999-11	FILM 0.1UF 275V	
C3603 ⚠	1-137-999-11	FILM 0.1UF 275V	
		< CONNECTOR >	
CN3601 ⚠	*1-580-843-11	PIN, CONNECTOR (POWER)	
CN3602	1-695-915-11	TAB (CONTACT)	
CN3603 ⚠	*1-580-843-11	PIN, CONNECTOR (POWER)	
		< FUSE >	
F3601 ⚠	1-576-232-21	FUSE (H.B.C.) 5A/250V	
FH3601 ⚠	1-533-725-11	FUSE HOLDER	
		< RESISTOR >	
R3601 ⚠	1-202-719-00	SOLID 1M 10% 1/2W	
		< TRANSFORMER >	
T3601 ⚠	1-433-488-31	TRANSFORMER, LINE FILTER	
T3602 ⚠	1-433-488-31	TRANSFORMER, LINE FILTER	
		< VARISTOR >	
VD3601 ⚠	1-803-830-31	VARISTOR (ERZV14D621)	

* A-1405-524-A B1 Board, Complete

		< CAPACITOR >	
C8401	1-126-947-11	ELECT 47UF 20.00% 35V	

REF.NO.	PART.NO	DESCRIPTION	REMARK
C8402	1-126-964-11	ELECT 10UF	20.00% 50V
C8403	1-126-964-11	ELECT 10UF	20.00% 50V
C8404	1-126-964-11	ELECT 10UF	20.00% 50V
C8405	1-107-826-11	CERAMIC CHIP 0.1UF	10.00% 16V
C8406	1-107-826-11	CERAMIC CHIP 0.1UF	10.00% 16V
C8407	1-107-826-11	CERAMIC CHIP 0.1UF	10.00% 16V
C8408	1-107-826-11	CERAMIC CHIP 0.1UF	10.00% 16V

< CONNECTOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
CN8401	*1-564-521-11	PLUG, CONNECTOR 6P	
CN8402	*1-778-770-11	CONNECTOR,BOARD TO BOARD(PLUG)	

< IC >

REF.NO.	PART.NO	DESCRIPTION	REMARK
IC8401	8-759-385-77	IC MC14053 BDR2	

< TRANSISTOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
Q8401	8-729-900-53	TRANSISTOR DTC114EK	
Q8402	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R	
Q8403	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R	
Q8404	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R	
Q8405	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R	
Q8406	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R	
Q8407	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R	

< RESISTOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
R8401	1-216-809-11	METAL CHIP 100 5%	1/10W
R8402	1-216-809-11	METAL CHIP 100 5%	1/10W
R8403	1-216-809-11	METAL CHIP 100 5%	1/10W
R8404	1-216-817-11	METAL CHIP 470 5%	1/10W
R8405	1-216-817-11	METAL CHIP 470 5%	1/10W
R8406	1-216-817-11	METAL CHIP 470 5%	1/10W
R8407	1-216-817-11	METAL CHIP 470 5%	1/10W
R8408	1-216-817-11	METAL CHIP 470 5%	1/10W
R8409	1-216-817-11	METAL CHIP 470 5%	1/10W
R8410	1-216-829-11	METAL CHIP 4.7K 5%	1/10W
R8411	1-216-835-11	METAL CHIP 15K 5%	1/10W
R8412	1-216-833-11	METAL CHIP 10K 5%	1/10W
R8413	1-216-835-11	METAL CHIP 15K 5%	1/10W
R8414	1-216-833-11	METAL CHIP 10K 5%	1/10W
R8415	1-216-835-11	METAL CHIP 15K 5%	1/10W
R8416	1-216-833-11	METAL CHIP 10K 5%	1/10W
R8417	1-216-821-11	METAL CHIP 1K 5%	1/10W
R8418	1-216-821-11	METAL CHIP 1K 5%	1/10W
R8419	1-216-821-11	METAL CHIP 1K 5%	1/10W

* A-1642-285-A D2 Board, Complete KD-28DX50
* A-1642-281-A D2 Board, Complete KD-32DX50

< CAPACITOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
C8802	1-136-104-00	FILM 0.16UF	5.00% 200V
C8803	1-115-521-11	FILM 0.82UF	5.00% 250V
C8804	1-136-207-11	MYLAR 0.047UF	5.00% 630V

< CONNECTOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
CN8801	*1-778-770-11	CONNECTOR,BOARD TO BOARD(PLUG)	
CN8802	*1-816-980-71	PLUG, CONNECTOR 3P	

< DIODE >

REF.NO.	PART.NO	DESCRIPTION	REMARK
D8801	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D8802	8-719-302-43	DIODE EL1Z	
D8803	8-719-921-40	DIODE MTZJ-4.7C	

< IC >

REF.NO.	PART.NO	DESCRIPTION	REMARK
IC8801	8-749-010-64	PHOTO COUPLER PC123F2	

< COIL >

REF.NO.	PART.NO	DESCRIPTION	REMARK
L8802	1-406-978-11	INDUCTOR 150UH	

< TRANSISTOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
Q8801	8-729-034-09	TRANSISTOR 2SK2518-01MR	
Q8802	1-801-806-11	TRANSISTOR DTC144EKA	
Q8803	1-801-806-11	TRANSISTOR DTC144EKA	

< RESISTOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
JR8801	1-216-864-11	SHORT CHIP 0	
R8801	1-216-864-11	SHORT CHIP 0	
R8803	1-249-441-11	CARBON 100K 5%	1/4W
R8804	1-216-825-11	METAL CHIP 2.2K 5%	1/10W
R8805	1-216-833-11	METAL CHIP 10K 5%	1/10W
R8806	1-216-809-11	METAL CHIP 100 5%	1/10W
R8812	1-218-879-11	METAL CHIP 22K 0.5%	1/10W

* A-1405-526-A A1 Board, Complete

REF.NO.	PART.NO	DESCRIPTION	REMARK
	4-202-373-01	SPRING, IC	
	*4-206-218-01	SHIELD BASE	
	4-382-854-11	SCREW (M3X10), P, SW (+)	

< CAPACITOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
C4103	1-164-156-11	CERAMIC CHIP 0.1UF	25V
C4104	1-162-974-11	CERAMIC CHIP 0.01UF	50V
C4105	1-162-974-11	CERAMIC CHIP 0.01UF	50V
C4106	1-164-156-11	CERAMIC CHIP 0.1UF	25V
C4107	1-164-156-11	CERAMIC CHIP 0.1UF	25V
C4109	1-162-974-11	CERAMIC CHIP 0.01UF	50V
C4110	1-126-933-11	ELECT 100UF	20.00% 16V
C4112	1-126-933-11	ELECT 100UF	20.00% 16V
C4114	1-126-933-11	ELECT 100UF	20.00% 16V
C4116	1-126-966-11	ELECT 33UF	20.00% 50V

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

REF.NO.	PART.NO	DESCRIPTION	REMARK
C4118	1-127-715-91	CERAMIC CHIP 0.22UF	10% 16V
C4119	1-164-160-11	CERAMIC CHIP 20PF	5.00% 50V
C4120	1-110-489-11	CAPACITOR 1F	5.5V
C4121	1-127-715-91	CERAMIC CHIP 0.22UF	10% 16V
C4126	1-164-346-11	CERAMIC CHIP 1UF	16V
C4127	1-164-346-11	CERAMIC CHIP 1UF	16V
C4128	1-164-346-11	CERAMIC CHIP 1UF	16V
C4130	1-126-964-11	ELECT 10UF	20.00% 50V
C4131	1-164-346-11	CERAMIC CHIP 1UF	16V
C4133	1-126-947-11	ELECT 47UF	20.00% 35V
C4134	1-126-947-11	ELECT 47UF	20.00% 35V
C4135	1-126-947-11	ELECT 47UF	20.00% 35V
C4136	1-126-947-11	ELECT 47UF	20.00% 35V
C4137	1-126-964-11	ELECT 10UF	20.00% 50V
C4138	1-164-156-11	CERAMIC CHIP 0.1UF	25V
C4139	1-164-156-11	CERAMIC CHIP 0.1UF	25V
C4142	1-126-964-11	ELECT 10UF	20.00% 50V
C4146	1-126-947-11	ELECT 47UF	20.00% 35V
C4147	1-164-156-11	CERAMIC CHIP 0.1UF	25V
C4148	1-162-974-11	CERAMIC CHIP 0.01UF	50V
C4149	1-164-156-11	CERAMIC CHIP 0.1UF	25V
C4150	1-126-966-11	ELECT 33UF	20.00% 50V
C4151	1-126-969-11	ELECT 220UF	20.00% 50V
C4152	1-164-156-11	CERAMIC CHIP 0.1UF	25V
C4156	1-162-974-11	CERAMIC CHIP 0.01UF	50V
C4158	1-162-974-11	CERAMIC CHIP 0.01UF	50V
C4159	1-162-974-11	CERAMIC CHIP 0.01UF	50V
C4161	1-162-974-11	CERAMIC CHIP 0.01UF	50V
C4163	1-162-974-11	CERAMIC CHIP 0.01UF	50V
C4164	1-162-974-11	CERAMIC CHIP 0.01UF	50V
C4165	1-162-974-11	CERAMIC CHIP 0.01UF	50V
C4166	1-162-925-11	CERAMIC CHIP 68PF	5.00% 50V
C4167	1-162-925-11	CERAMIC CHIP 68PF	5.00% 50V
C4601 ⚠	1-161-964-91	CERAMIC 0.0047UF	250V
C4602 ⚠	1-161-964-91	CERAMIC 0.0047UF	250V
C4603	1-137-635-41	ELECT(BLOCK) 68UF	20% 450V
C4604	1-127-568-51	CERAMIC 4700PF	10% 2KV
C4605	1-126-964-11	ELECT 10UF	20.00% 50V
C4606	1-102-228-00	CERAMIC 470PF	10.00% 500V
C4607	1-162-318-11	CERAMIC 0.001UF	10.00% 500V
C4608	1-165-602-91	CERAMIC 220PF	10 2KV
C4609	1-126-967-11	ELECT 47UF	20.00% 50V
C4610	1-130-777-00	MYLAR 0.1UF	5.00% 100V
C4611	1-130-777-00	MYLAR 0.1UF	5.00% 100V
C4612	1-115-766-51	ELECT 0.0022F	20.00% 16V
C4613	1-136-165-00	FILM 0.1UF	5.00% 50V
C4614	1-104-665-11	ELECT 100UF	20.00% 25V
C4615	1-115-766-51	ELECT 0.0022F	20.00% 16V
C4616	1-136-165-00	FILM 0.1UF	5.00% 50V
C4617	1-104-665-11	ELECT 100UF	20.00% 25V
C4618	1-115-792-11	ELECT 0.0022F	20.00% 25V
C4619	1-136-165-00	FILM 0.1UF	5.00% 50V
C4620	1-104-665-11	ELECT 100UF	20.00% 25V
C4621	1-136-165-00	FILM 0.1UF	5.00% 50V
C4622	1-104-665-11	ELECT 100UF	20.00% 25V
C4623	1-136-165-00	FILM 0.1UF	5.00% 50V
C4624	1-104-665-11	ELECT 100UF	20.00% 25V
C4625	1-136-165-00	FILM 0.1UF	5.00% 50V
C4626	1-104-665-11	ELECT 100UF	20.00% 25V
C4627	1-136-165-00	FILM 0.1UF	5.00% 50V
C4628	1-104-665-11	ELECT 100UF	20.00% 25V
C4629	1-136-165-00	FILM 0.1UF	5.00% 50V
C4630	1-164-346-11	CERAMIC CHIP 1UF	16V
C4631	1-164-156-11	CERAMIC CHIP 0.1UF	25V
C4632	1-126-964-11	ELECT 10UF	20.00% 50V
C4633	1-164-156-11	CERAMIC CHIP 0.1UF	25V

< CONNECTOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
CN4101	*1-794-730-11	SOCKET, PC CONNECTOR (PC BOARD	
CN4103	*1-816-977-51	PLUG, CONNECTOR 6P	
CN4104	*1-564-596-11	PLUG, CONNECTOR 15P	
CN4105	1-695-915-11	TAB (CONTACT)	
CN4106	1-695-915-11	TAB (CONTACT)	
CN4601 ⚠	*1-580-843-11	PIN, CONNECTOR (POWER)	
CN4602	*1-816-974-51	PLUG, CONNECTOR 3P	

< DIODE >

REF.NO.	PART.NO	DESCRIPTION	REMARK
D4101	8-719-982-24	DIODE MTZJ-33A	
D4103	8-719-914-43	DIODE DAN202K	
D4601	8-719-025-88	DIODE GBU4JL-6088	
D4602	8-719-080-26	DIODE SARS01V0	
D4603	8-719-075-11	DIODE AG01ZV0	
D4604	8-719-075-11	DIODE AG01ZV0	
D4605	8-719-075-11	DIODE AG01ZV0	
D4606	8-719-075-11	DIODE AG01ZV0	
D4607	6-500-081-01	DIODE RK34-LF-C4	
D4608	8-719-059-21	DIODE RK46LF-T2	
D4609	6-500-082-01	DIODE RJ43-LF-T2	
D4610	8-719-076-73	DIODE UGB8BT-31	
D4611	8-719-991-33	DIODE 1SS133T-77	
D4612	8-719-076-73	DIODE UGB8BT-31	
D4613	8-719-401-32	DIODE MA3047M-TX	

< FERRITE BEAD >

REF.NO.	PART.NO	DESCRIPTION	REMARK
FB4102	1-469-869-21	FERRITE 0UH	
FB4104	1-469-869-21	FERRITE 0UH	
FB4105	1-469-869-21	FERRITE 0UH	
FB4107	1-469-869-21	FERRITE 0UH	
FB4109	1-469-869-21	FERRITE 0UH	

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

REF.NO.	PART.NO	DESCRIPTION	REMARK
FB4110	1-469-869-21	FERRITE 0UH	
FB4111	1-469-869-21	FERRITE 0UH	
FB4601	1-535-465-11	LEAD, JUMPER (5.0MM)	
FB4602	1-535-465-11	LEAD, JUMPER (5.0MM)	
FB4603	1-410-396-41	FERRITE 0.45UH	
FB4604	1-535-465-11	LEAD, JUMPER (5.0MM)	
FB4605	1-535-465-11	LEAD, JUMPER (5.0MM)	
FB4606	1-535-465-11	LEAD, JUMPER (5.0MM)	
		< FILTER >	
FL4101	1-239-899-21	FERRITE 0UH	
FL4102	1-239-899-21	FERRITE 0UH	
FL4103	1-239-899-21	FERRITE 0UH	
FL4104	1-239-899-21	FERRITE 0UH	
FL4105	1-239-899-21	FERRITE 0UH	
FL4108	1-239-899-21	FERRITE 0UH	
		< IC >	
IC4102	8-759-478-44	IC PCF8593/T118	
IC4104	8-759-385-77	IC MC14053 BDR2	
IC4105	8-752-072-94	IC CXA1875AM-T4	
IC4601	6-700-292-01	IC STR-L474-LF429	
IC4602 ⚠	8-749-013-21	IC TLP721(D4-GR.T)	
IC4603	6-700-293-01	IC SE-012N-LF4	
IC4604	8-759-390-57	IC UPC2405AHF	
IC4605	8-759-069-28	IC PQ05RF11	
IC4606	8-759-267-25	IC LM2940T-9.0	
IC4607	8-759-473-67	IC PQ3RF33	
IC4608	8-759-988-13	IC LM393PS	
		< COIL >	
L4101	1-410-667-31	INDUCTOR 22UH	
L4102	1-412-002-31	INDUCTOR 4.7UH	
L4103	1-412-002-31	INDUCTOR 4.7UH	
L4600	1-410-397-21	FERRITE 1.1UH	
L4602	1-412-519-11	INDUCTOR 3.3UH	
L4603	1-412-519-11	INDUCTOR 3.3UH	
L4604	1-412-519-11	INDUCTOR 3.3UH	
		< PROTECTOR MODULE >	
PS4601	1-535-465-11	LEAD, JUMPER (5.0MM)	
PS4603 ⚠	1-801-550-21	IC LINK 2.5A 0V	
PS4604	1-535-465-11	LEAD, JUMPER (5.0MM)	
PS4605 ⚠	1-801-549-21	IC LINK 4A 0V	
		< TRANSISTOR >	
Q4104	8-729-028-28	TRANSISTOR 2SK2036(TE85L)	
Q4105	8-729-028-28	TRANSISTOR 2SK2036(TE85L)	
Q4106	8-729-028-28	TRANSISTOR 2SK2036(TE85L)	
Q4107	8-729-028-28	TRANSISTOR 2SK2036(TE85L)	
Q4112	8-729-216-22	TRANSISTOR 2SA1162-G	
Q4113	8-729-216-22	TRANSISTOR 2SA1162-G	
Q4114	8-729-216-22	TRANSISTOR 2SA1162-G	
Q4115	8-729-216-22	TRANSISTOR 2SA1162-G	
Q4116	8-729-216-22	TRANSISTOR 2SA1162-G	
Q4117	8-729-216-22	TRANSISTOR 2SA1162-G	
Q4118	1-801-806-11	TRANSISTOR DTC144EKA	
Q4119	1-801-806-11	TRANSISTOR DTC144EKA	
Q4120	1-801-806-11	TRANSISTOR DTC144EKA	
Q4123	8-729-216-22	TRANSISTOR 2SA1162-G	
Q4124	8-729-216-22	TRANSISTOR 2SA1162-G	
Q4601	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q4602	1-801-806-11	TRANSISTOR DTC144EKA	
Q4603	1-801-806-11	TRANSISTOR DTC144EKA	
		< RESISTOR >	
R4104	1-216-864-11	SHORT CHIP 0	
R4105	1-216-864-11	SHORT CHIP 0	
R4106	1-216-864-11	SHORT CHIP 0	
R4107	1-216-864-11	SHORT CHIP 0	
R4108	1-216-864-11	SHORT CHIP 0	
R4109	1-216-864-11	SHORT CHIP 0	
R4110	1-216-864-11	SHORT CHIP 0	
R4111	1-216-864-11	SHORT CHIP 0	
R4112	1-216-864-11	SHORT CHIP 0	
R4113	1-216-864-11	SHORT CHIP 0	
R4114	1-216-864-11	SHORT CHIP 0	
R4115	1-216-864-11	SHORT CHIP 0	
R4116	1-216-864-11	SHORT CHIP 0	
R4118	1-216-864-11	SHORT CHIP 0	
R4119	1-216-864-11	SHORT CHIP 0	
R4123	1-216-817-11	METAL CHIP 470 5% 1/10W	
R4124	1-216-841-11	METAL CHIP 47K 5% 1/10W	
R4130	1-216-829-11	METAL CHIP 4.7K 5% 1/10W	
R4131	1-216-829-11	METAL CHIP 4.7K 5% 1/10W	
R4132	1-216-833-11	METAL CHIP 10K 5% 1/10W	
R4133	1-216-833-11	METAL CHIP 10K 5% 1/10W	
R4136	1-216-841-11	METAL CHIP 47K 5% 1/10W	
R4137	1-216-809-11	METAL CHIP 100 5% 1/10W	
R4138	1-216-809-11	METAL CHIP 100 5% 1/10W	
R4139	1-216-809-11	METAL CHIP 100 5% 1/10W	
R4140	1-216-833-11	METAL CHIP 10K 5% 1/10W	
R4141	1-216-833-11	METAL CHIP 10K 5% 1/10W	
R4142	1-216-833-11	METAL CHIP 10K 5% 1/10W	
R4143	1-216-833-11	METAL CHIP 10K 5% 1/10W	
R4144	1-216-864-11	SHORT CHIP 0	
R4145	1-216-864-11	SHORT CHIP 0	
R4151	1-216-821-11	METAL CHIP 1K 5% 1/10W	
R4152	1-216-835-11	METAL CHIP 15K 5% 1/10W	

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

REF.NO.	PART.NO	DESCRIPTION			REMARK
R4153	1-216-833-11	METAL CHIP	10K	5%	1/10W
R4155	1-216-821-11	METAL CHIP	1K	5%	1/10W
R4156	1-216-835-11	METAL CHIP	15K	5%	1/10W
R4157	1-216-833-11	METAL CHIP	10K	5%	1/10W
R4158	1-216-864-11	SHORT CHIP	0		
R4160	1-216-841-11	METAL CHIP	47K	5%	1/10W
R4161	1-218-867-11	METAL CHIP	6.8K	0.5%	1/10W
R4162	1-216-841-11	METAL CHIP	47K	5%	1/10W
R4163	1-218-867-11	METAL CHIP	6.8K	0.5%	1/10W
R4164	1-216-841-11	METAL CHIP	47K	5%	1/10W
R4165	1-216-833-11	METAL CHIP	10K	5%	1/10W
R4166	1-216-841-11	METAL CHIP	47K	5%	1/10W
R4167	1-216-833-11	METAL CHIP	10K	5%	1/10W
R4168	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R4169	1-216-821-11	METAL CHIP	1K	5%	1/10W
R4170	1-216-833-11	METAL CHIP	10K	5%	1/10W
R4171	1-216-821-11	METAL CHIP	1K	5%	1/10W
R4172	1-216-833-11	METAL CHIP	10K	5%	1/10W
R4173	1-216-833-11	METAL CHIP	10K	5%	1/10W
R4176	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R4177	1-216-821-11	METAL CHIP	1K	5%	1/10W
R4178	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R4183	1-216-809-11	METAL CHIP	100	5%	1/10W
R4184	1-216-809-11	METAL CHIP	100	5%	1/10W
R4185	1-216-821-11	METAL CHIP	1K	5%	1/10W
R4186	1-216-841-11	METAL CHIP	47K	5%	1/10W
R4187	1-216-833-11	METAL CHIP	10K	5%	1/10W
R4188	1-216-841-11	METAL CHIP	47K	5%	1/10W
R4189	1-216-833-11	METAL CHIP	10K	5%	1/10W
R4190	1-216-864-11	SHORT CHIP	0		
R4195	1-216-809-11	METAL CHIP	100	5%	1/10W
R4196	1-216-809-11	METAL CHIP	100	5%	1/10W
R4199	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R4201	1-216-833-11	METAL CHIP	10K	5%	1/10W
R4202	1-216-864-11	SHORT CHIP	0		
R4204	1-216-864-11	SHORT CHIP	0		
R4206	1-216-821-11	METAL CHIP	1K	5%	1/10W
R4601 ⚠	1-217-155-00	METAL	1	10%	2W
R4602	1-260-128-91	CARBON	270K	5%	1/2W
R4603 ⚠	1-217-418-00	FUSIBLE	0.47	10%	1/2W
R4604	1-260-133-11	CARBON	680K	5%	1/2W
R4605	1-215-884-11	METAL OXIDE	47	5%	2W
R4606	1-249-401-11	CARBON	47	5%	1/4W
R4607	1-249-421-11	CARBON	2.2K	5%	1/4W
R4608	1-249-415-11	CARBON	680	5%	1/4W
R4609	1-216-366-00	METAL OXIDE	0.56	5%	2W
R4610	1-249-419-11	CARBON	1.5K	5%	1/4W
R4611	1-249-403-11	CARBON	68	5%	1/4W
R4612	1-249-418-11	CARBON	1.2K	5%	1/4W
R4613	1-249-419-11	CARBON	1.5K	5%	1/4W
R4614	1-247-807-31	CARBON	100	5%	1/4W
R4616	1-249-437-11	CARBON	47K	5%	1/4W
R4617	1-249-437-11	CARBON	47K	5%	1/4W
R4618	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R4619	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R4620	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R4621	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R4622	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R4623	1-216-821-11	METAL CHIP	1K	5%	1/10W
R4624	1-216-809-11	METAL CHIP	100	5%	1/10W
R4625	1-260-127-11	CARBON	220K	5%	1/2W
R4626	1-249-420-11	CARBON	1.8K	5%	1/4W
R4627	1-216-365-00	METAL OXIDE	0.47	5%	2W

< RELAY >

REF.NO.	PART.NO	DESCRIPTION
RY4601 ⚠	1-755-388-11	RELAY (AC POWER)

< TRANSFORMER >

REF.NO.	PART.NO	DESCRIPTION	
T4601 ⚠	1-437-445-11	TRANSFORMER, CONVERTER (SRT)	
T4602	1-424-993-11	INDUCTOR	20MH

< TUNER >

REF.NO.	PART.NO	DESCRIPTION
TU4101	8-598-626-00	TUNER UNIT, DIGITAL BTD-DU606
TU4102	1-693-557-14	FRONTEND (TUNER+IF)

< CRYSTAL >

REF.NO.	PART.NO	DESCRIPTION
X4101	1-760-105-11	VIBRATOR, CRYSTAL

* A-1632-947-A A Board, Complete KD-28DX50
* A-1632-948-A A Board, Complete KD-32DX50

A Board, Common Parts

REF.NO.	PART.NO	DESCRIPTION
	4-382-854-01	SCREW (M3X8), P, SW (+)

< CAPACITOR >

REF.NO.	PART.NO	DESCRIPTION			REMARK
C002	1-163-233-91	CERAMIC CHIP	18PF	5.00%	50V
C004	1-163-037-11	CERAMIC CHIP	0.022UF	10.00%	50V
C005	1-126-916-11	ELECT	1000UF	20.00%	6.3V
C006	1-163-233-91	CERAMIC CHIP	18PF	5.00%	50V
C009	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C010	1-164-005-11	CERAMIC CHIP	0.47UF		25V
C011	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C012	1-126-963-11	ELECT	4.7UF	20.00%	50V
C013	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C014	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C015	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C018	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C019	1-162-919-11	CERAMIC CHIP	22PF	5.00%	50V
C020	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V

REF.NO.	PART.NO	DESCRIPTION		REMARK	
C021	1-163-037-11	CERAMIC CHIP	0.022UF	10.00%	50V
C022	1-126-935-11	ELECT	470UF	20.00%	16V
C025	1-126-935-11	ELECT	470UF	20.00%	16V
C026	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C027	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C028	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C030	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C033	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C035	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C036	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C037	1-136-244-11	FILM	0.1UF	2.00%	50V
C038	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C039	1-164-505-11	CERAMIC CHIP	2.2UF		16V
C040	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C042	1-162-625-11	CERAMIC CHIP	0.0047UF	5.00%	50V
C043	1-163-037-11	CERAMIC CHIP	0.022UF	10.00%	50V
C044	1-164-346-11	CERAMIC CHIP	1UF		16V
C045	1-164-489-11	CERAMIC CHIP	0.22UF	10.00%	16V
C046	1-163-037-11	CERAMIC CHIP	0.022UF	10.00%	50V
C047	1-126-935-11	ELECT	470UF	20.00%	16V
C053	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C055	1-126-960-11	ELECT	1UF	20.00%	50V
C100	1-126-933-11	ELECT	100UF	20.00%	16V
C105	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C106	1-126-933-11	ELECT	100UF	20.00%	16V
C204	1-115-340-11	CERAMIC CHIP	0.22UF	10.00%	25V
C211	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C213	1-216-295-91	SHORT CHIP	0		
C214	1-163-253-11	CERAMIC CHIP	120PF	5.00%	50V
C215	1-163-084-00	CERAMIC CHIP	1.5PF	0.25PF	50V
C216	1-163-117-00	CERAMIC CHIP	100PF	5.00%	50V
C217	1-163-084-00	CERAMIC CHIP	1.5PF	0.25PF	50V
C218	1-216-295-91	SHORT CHIP	0		
C221	1-163-109-00	CERAMIC CHIP	47PF	5.00%	50V
C222	1-163-117-00	CERAMIC CHIP	100PF	5.00%	50V
C223	1-126-965-91	ELECT	22UF	20.00%	50V
C224	1-163-117-00	CERAMIC CHIP	100PF	5.00%	50V
C225	1-126-157-11	ELECT	10UF	20.00%	16V
C226	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C227	1-163-117-00	CERAMIC CHIP	100PF	5.00%	50V
C228	1-126-965-91	ELECT	22UF	20.00%	50V
C229	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C230	1-164-336-11	CERAMIC CHIP	0.33UF		25V
C232	1-126-157-11	ELECT	10UF	20.00%	16V
C233	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C234	1-107-823-11	CERAMIC CHIP	0.47UF	10.00%	16V
C235	1-164-005-11	CERAMIC CHIP	0.47UF		25V
C236	1-126-157-11	ELECT	10UF	20.00%	16V
C237	1-126-965-91	ELECT	22UF	20.00%	50V
C238	1-163-117-00	CERAMIC CHIP	100PF	5.00%	50V
C239	1-126-157-11	ELECT	10UF	20.00%	16V
C242	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C245	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C401	1-126-964-11	ELECT	10UF	20.00%	50V
C404	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C405	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C407	1-164-346-11	CERAMIC CHIP	1UF		16V
C408	1-127-715-91	CERAMIC CHIP	0.22UF	10%	16V
C409	1-126-964-11	ELECT	10UF	20.00%	50V
C410	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C411	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C412	1-164-346-11	CERAMIC CHIP	1UF		16V
C414	1-164-346-11	CERAMIC CHIP	1UF		16V
C415	1-164-346-11	CERAMIC CHIP	1UF		16V
C416	1-126-964-11	ELECT	10UF	20.00%	50V
C417	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C418	1-164-346-11	CERAMIC CHIP	1UF		16V
C419	1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C423	1-127-715-91	CERAMIC CHIP	0.22UF	10%	16V
C424	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C426	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C427	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C428	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C429	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C430	1-102-114-00	CERAMIC	470PF	10.00%	50V
C435	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C436	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C437	1-164-346-11	CERAMIC CHIP	1UF		16V
C438	1-164-346-11	CERAMIC CHIP	1UF		16V
C445	1-126-964-11	ELECT	10UF	20.00%	50V
C446	1-126-964-11	ELECT	10UF	20.00%	50V
C447	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C449	1-216-025-11	RES-CHIP	100	5%	1/10W
C501	1-126-968-11	ELECT	100UF	20.00%	50V
C502	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C503	1-126-968-11	ELECT	100UF	20.00%	50V
C504	1-106-220-00	MYLAR	0.1UF	10.00%	100V
C505	1-137-194-81	FILM	0.47UF	5.00%	50V
C506	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C509	1-107-364-11	MYLAR	0.01UF	10.00%	200V
C510	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C513	1-107-662-11	ELECT	22UF	20.00%	350V
C515	1-104-666-11	ELECT	220UF	20.00%	25V
C517	1-115-781-11	ELECT	220UF	20.00%	25V
C518	1-106-375-12	MYLAR	0.022UF	5.00%	200V
C519	1-163-275-11	CERAMIC CHIP	0.001UF	5.00%	50V
C520	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C524	1-163-037-11	CERAMIC CHIP	0.022UF	10.00%	50V
C525	1-123-024-21	ELECT	33UF		160V
C531	1-126-964-11	ELECT	10UF	20.00%	50V

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

A

REF.NO.		PART.NO	DESCRIPTION	REMARK
C532		1-163-037-11	CERAMIC CHIP 0.022UF	10.00% 50V
C537		1-102-002-00	CERAMIC 680PF	10.00% 500V
C538		1-165-319-11	CERAMIC CHIP 0.1UF	50V
C540		1-136-206-11	MYLAR 0.033UF	5.00% 630V
C541		1-106-383-00	MYLAR 0.047UF	10.00% 200V
C543		1-162-134-11	CERAMIC 470PF	10.00% 2KV
C545		1-164-004-11	CERAMIC CHIP 0.1UF	10.00% 25V
C546		1-130-895-00	FILM 0.056UF	5.00% 400V
C548		1-162-134-11	CERAMIC 470PF	10.00% 2KV
C550		1-107-638-11	ELECT 33UF	20.00% 160V
C552		1-102-212-00	CERAMIC 820PF	10.00% 500V
C553		1-137-417-11	MYLAR 0.015UF	10.00% 100V
C580		1-162-970-11	CERAMIC CHIP 0.01UF	10.00% 25V
C582		1-163-259-91	CERAMIC CHIP 220PF	5.00% 50V
C583		1-163-009-91	CERAMIC CHIP 0.001UF	10.00% 50V
C600	⚠	1-119-888-51	CERAMIC 2200PF	20.00% 250V
C601	⚠	1-137-999-11	FILM 0.1UF	275V
C603	⚠	1-119-899-51	CERAMIC 1000PF	10.00% 250V
C604	⚠	1-119-899-51	CERAMIC 1000PF	10.00% 250V
C606		1-117-751-11	ELECT(BLOCK) 220UF	20.00% 450V
C607		1-126-964-11	ELECT 10UF	20.00% 50V
C608		1-126-963-11	ELECT 4.7UF	20.00% 50V
C611		1-163-009-91	CERAMIC CHIP 0.001UF	10.00% 50V
C612	⚠	1-104-571-91	CERAMIC 0.0015UF	10.00% 2KV
C613	⚠	1-104-571-91	CERAMIC 0.0015UF	10.00% 2KV
C614	⚠	1-161-964-51	CERAMIC 0.0047UF	250V
C615		1-115-339-11	CERAMIC CHIP 0.1UF	10.00% 50V
C616		1-165-127-11	CERAMIC 470PF	10.00% 500V
C617		1-165-127-11	CERAMIC 470PF	10.00% 500V
C618		1-126-949-11	ELECT 220UF	20.00% 35V
C619		1-165-127-51	CERAMIC 470PF	10.00% 500V
C620		1-137-990-22	FILM 33000PF	3% 800V
C621		1-165-127-51	CERAMIC 470PF	10.00% 500V
C622	⚠	1-104-571-91	CERAMIC 0.0015UF	10.00% 2KV
C623	⚠	1-104-571-91	CERAMIC 0.0015UF	10.00% 2KV
C624		1-126-935-11	ELECT 470UF	20.00% 16V
C626		1-126-967-11	ELECT 47UF	20.00% 50V
C627		1-126-964-11	ELECT 10UF	20.00% 50V
C628		1-126-963-11	ELECT 4.7UF	20.00% 50V
C629		1-165-127-11	CERAMIC 470PF	10.00% 500V
C630		1-107-641-11	ELECT 220UF	20.00% 160V
C631		1-126-942-61	ELECT 1000UF	20.00% 25V
C632		1-126-964-11	ELECT 10UF	20.00% 50V
C633		1-163-009-91	CERAMIC CHIP 0.001UF	10.00% 50V
C635		1-136-165-00	FILM 0.1UF	5.00% 50V
C636		1-136-479-11	FILM 0.001UF	5.00% 100V
C637		1-126-967-11	ELECT 47UF	20.00% 50V
C638		1-107-679-91	ELECT 10UF	20.00% 450V
C639		1-104-665-11	ELECT 100UF	20.00% 25V
C640		1-126-947-11	ELECT 47UF	20.00% 35V

REF.NO.		PART.NO	DESCRIPTION	REMARK
C642		1-104-665-11	ELECT 100UF	20.00% 25V
C643		1-165-127-11	CERAMIC 470PF	10.00% 500V
C645		1-164-004-11	CERAMIC CHIP 0.1UF	10.00% 25V
C648		1-125-782-91	CERAMIC 4700PF	10.00% 1KV
C649		1-163-038-91	CERAMIC CHIP 0.1UF	25V
C657		1-126-952-11	ELECT 1000UF	20.00% 35V
C1201		1-126-952-11	ELECT 1000UF	20.00% 35V
C1203		1-535-303-00	LEAD,JUMPER (5.0MM)	
C1207		1-126-960-11	ELECT 1UF	20.00% 50V
C1209		1-163-033-91	CERAMIC CHIP 0.022UF	50V
C1210		1-126-960-11	ELECT 1UF	20.00% 50V
C1211		1-163-033-91	CERAMIC CHIP 0.022UF	50V
C1213		1-164-346-11	CERAMIC CHIP 1UF	16V
C1215		1-126-952-11	ELECT 1000UF	20.00% 35V
C1218		1-109-982-11	CERAMIC CHIP 1UF	10.00% 10V
C1219		1-104-666-11	ELECT 220UF	20.00% 25V
C1221		1-115-339-11	CERAMIC CHIP 0.1UF	10.00% 50V
C1228		1-126-952-11	ELECT 1000UF	20.00% 35V
C1229		1-163-001-11	CERAMIC CHIP 220PF	10.00% 50V
C1230		1-163-001-11	CERAMIC CHIP 220PF	10.00% 50V
C1231		1-163-001-11	CERAMIC CHIP 220PF	10.00% 50V
C1235		1-126-960-11	ELECT 1UF	20.00% 50V
C1236		1-126-960-11	ELECT 1UF	20.00% 50V

< CONNECTOR >

REF.NO.		PART.NO	DESCRIPTION	REMARK
CN001		*1-816-976-51	PLUG, CONNECTOR 5P	
CN002		*1-770-723-11	CONNECTOR, BOARD TO BOARD 8P	
CN003		*1-816-978-51	PLUG, CONNECTOR 7P	
CN101		1-695-915-11	TAB (CONTACT)	
CN102		1-695-915-11	TAB (CONTACT)	
CN301		*1-564-596-11	PLUG, CONNECTOR 15P	
CN405		*1-816-978-51	PLUG, CONNECTOR 7P	
CN406		*1-564-512-11	PLUG, CONNECTOR 9P	
CN501		1-580-798-11	CONNECTOR PIN (DY)	
CN506		1-695-915-11	TAB (CONTACT)	
CN508		*1-816-976-51	PLUG, CONNECTOR 5P	
CN509		1-695-915-11	TAB (CONTACT)	
CN510		1-691-771-11	PLUG (MICRO CONNECTOR) 9P	
CN512		*1-770-723-11	CONNECTOR, BOARD TO BOARD 8P	
CN601	⚠	*1-580-843-11	PIN, CONNECTOR (POWER)	
CN602	⚠	1-508-765-13	PIN, CONNECTOR (5MM PITCH) 3P	
CN603	⚠	*1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P	
CN605	⚠	*1-691-960-11	PIN, CONNECTOR (PC BOARD) 3P	
CN606	⚠	*1-695-292-11	PIN, CONNECTOR (POWER)	
CN642		*1-816-974-51	PLUG, CONNECTOR 3P	
CN1200		*1-816-977-51	PLUG, CONNECTOR 6P	
CN1201		*1-816-975-51	PLUG, CONNECTOR 4P	

REF.NO.	PART.NO	DESCRIPTION	REMARK
		< DIODE >	
D001	8-719-069-55	DIODE UDZSTE-175.6B	
D002	8-719-069-55	DIODE UDZSTE-175.6B	
D003	8-719-109-69	DIODE RD3.6ESB2	
D005	8-719-929-15	DIODE HZS9.1NB2	
D006	8-719-109-89	DIODE RD5.6ESB2	
D007	8-719-069-55	DIODE UDZSTE-175.6B	
D008	8-719-074-43	DIODE BAS316-115	
D010	8-719-074-43	DIODE BAS316-115	
D011	8-719-074-43	DIODE BAS316-115	
D012	8-719-929-15	DIODE HZS9.1NB2	
D013	8-719-109-69	DIODE RD3.6ESB2	
D014	1-216-295-91	SHORT CHIP 0	
D016	8-719-109-89	DIODE RD5.6ESB2	
D018	8-719-109-69	DIODE RD3.6ESB2	
D019	8-719-978-33	DIODE DTZ-TT11-6.8B	
D021	8-719-978-33	DIODE DTZ-TT11-6.8B	
D022	8-719-069-55	DIODE UDZSTE-175.6B	
D035	8-719-069-55	DIODE UDZSTE-175.6B	
D036	8-719-069-55	DIODE UDZSTE-175.6B	
D051	8-719-081-98	DIODE MM3Z6V8T1	
D103	8-719-081-98	DIODE MM3Z6V8T1	
D104	8-719-069-55	DIODE UDZSTE-175.6B	
D105	8-719-069-55	DIODE UDZSTE-175.6B	
D106	8-719-069-55	DIODE UDZSTE-175.6B	
D107	8-719-069-55	DIODE UDZSTE-175.6B	
D203	8-719-069-55	DIODE UDZSTE-175.6B	
D207	6-500-028-01	DIODE MM3Z9V1ST1	
D210	8-719-069-55	DIODE UDZSTE-175.6B	
D211	6-500-028-01	DIODE MM3Z9V1ST1	
D212	8-719-914-43	DIODE DAN202K	
D228	8-719-069-55	DIODE UDZSTE-175.6B	
D235	8-719-069-55	DIODE UDZSTE-175.6B	
D236	6-500-028-01	DIODE MM3Z9V1ST1	
D401	8-719-978-33	DIODE DTZ-TT11-6.8B	
D402	8-719-081-98	DIODE MM3Z6V8T1	
D403	8-719-069-55	DIODE UDZSTE-175.6B	
D404	8-719-109-89	DIODE RD5.6ESB2	
D405	8-719-081-98	DIODE MM3Z6V8T1	
D406	8-719-081-98	DIODE MM3Z6V8T1	
D407	8-719-081-98	DIODE MM3Z6V8T1	
D408	8-719-978-33	DIODE DTZ-TT11-6.8B	
D410	8-719-978-33	DIODE DTZ-TT11-6.8B	
D411	8-719-978-33	DIODE DTZ-TT11-6.8B	
D412	8-719-081-98	DIODE MM3Z6V8T1	
D413	8-719-978-33	DIODE DTZ-TT11-6.8B	
D414	8-719-081-98	DIODE MM3Z6V8T1	
D418	6-500-028-01	DIODE MM3Z9V1ST1	
D420	8-719-069-55	DIODE UDZSTE-175.6B	
D422	8-719-978-33	DIODE DTZ-TT11-6.8B	
D423	8-719-081-98	DIODE MM3Z6V8T1	
D424	6-500-028-01	DIODE MM3Z9V1ST1	
D427	8-719-082-01	DIODE MM3Z12VT1	
D428	8-719-978-33	DIODE DTZ-TT11-6.8B	
D429	8-719-978-33	DIODE DTZ-TT11-6.8B	
D435	6-500-028-01	DIODE MM3Z9V1ST1	
D436	6-500-028-01	DIODE MM3Z9V1ST1	
D501	8-719-979-85	DIODE EGP20G	
D502	8-719-081-90	DIODE PDZ22B-115	
D503	8-719-069-55	DIODE UDZSTE-175.6B	
D504	8-719-074-43	DIODE BAS316-115	
D512	8-719-302-43	DIODE EL1Z	
D513	8-719-979-85	DIODE EGP20G	
D514	8-719-979-85	DIODE EGP20G	
D534	8-719-302-43	DIODE EL1Z	
D535	8-719-908-03	DIODE GP08D	
D536	8-719-945-80	DIODE ERC06-15S	
D537	8-719-070-62	DIODE PDZ9.1B-115	
D538	8-719-908-03	DIODE GP08D	
D539	8-719-312-10	DIODE RU4AM-T3	
D541	1-216-295-91	SHORT CHIP 0	
D573	8-719-082-00	DIODE MM3Z4V7T1	
D601	8-719-510-53	DIODE D4SB60L	
D602	8-719-911-19	DIODE 1SS119-25	
D604	8-719-083-94	DIODE FUF4005	
D608	6-500-175-01	DIODE 1E3-TB	
D610	8-719-110-41	DIODE RD15ESB2	
D611	8-719-991-33	DIODE 1SS133T-77	
D612	8-719-991-33	DIODE 1SS133T-77	
D613	8-719-911-19	DIODE 1SS119-25	
D614	6-500-465-01	DIODE G2SBA60L-5700	
D618	8-719-022-97	DIODE D2S4MF	
D619	8-719-022-97	DIODE D2S4MF	
D620	8-719-109-85	DIODE RD5.1ESB2	
D621	8-719-109-89	DIODE RD5.6ESB2	
D623	8-719-911-19	DIODE 1SS119-25	
D625	6-500-246-01	DIODE FBIU4D7M1-B-4	
D627	6-500-175-01	DIODE 1E3-TB	
D628	8-719-083-49	DIODE P6KE200ASY	
D629	8-719-083-94	DIODE FUF4005	
D631	8-719-921-63	DIODE MTZJ-7.5B	
D632	6-500-175-01	DIODE 1E3-TB	
D633	8-719-109-69	DIODE RD3.6ESB2	
D640	8-719-921-63	DIODE MTZJ-7.5B	
D1203	8-719-914-43	DIODE DAN202K	
D1204	8-719-069-55	DIODE UDZSTE-175.6B	
D1230	8-719-074-43	DIODE BAS316-115	

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

REF.NO.	PART.NO	DESCRIPTION	REMARK
		< FERRITE BEAD >	
FB410	1-414-760-21	FERRITE 0UH	
FB411	1-414-760-21	FERRITE 0UH	
FB412	1-414-760-21	FERRITE 0UH	
FB601	1-469-578-11	FERRITE 1.1UH	
FB602	1-469-578-11	FERRITE 1.1UH	
FB603	1-412-911-11	FERRITE 0UH	
FB604	1-469-578-11	FERRITE 1.1UH	
FB605	1-469-578-11	FERRITE 1.1UH	
FB606 ⚠	1-412-911-11	FERRITE 0UH	
FB607 ⚠	1-412-911-11	FERRITE 0UH	
		< FILTER >	
FL201	1-239-803-11	FILTER, EMI	
		< IC >	
IC001	6-801-263-03	IC TDA9394H/N1/5/0716	
IC004	8-759-682-41	IC M24C32-WMN6T(A)	
IC201	6-700-411-02	IC MSP3411G-PP-B8V3	
IC401	8-759-665-11	IC LM393DT	
IC501	8-759-696-71	IC STV9379A	
IC531	8-759-665-11	IC LM393DT	
IC601	8-759-670-30	IC MCZ3001D	
IC602	8-749-016-19	IC SE135N-LF4	
IC608	8-759-591-02	IC L78L33ABZ-AP	
IC609	8-759-468-89	IC TOP209P	
IC1201	8-759-831-57	IC TDA7495S	
		< SOCKET >	
J401	*1-766-296-41	CONNECTOR, DUAL SCART	
J404	1-793-987-11	JACK, PIN 2P	
		< COIL >	
L001	1-408-611-31	INDUCTOR 47UH	
L002	1-414-187-11	INDUCTOR 47UH	
L004	1-408-611-31	INDUCTOR 47UH	
L006	1-408-611-31	INDUCTOR 47UH	
L027	1-216-295-91	SHORT CHIP 0	
L101	1-412-534-31	INDUCTOR 56UH	
L102	1-408-611-31	INDUCTOR 47UH	
L103	1-412-002-31	INDUCTOR 4.7UH	
L104	1-412-002-31	INDUCTOR 4.7UH	
L201	1-535-303-00	LEAD, JUMPER (5.0MM)	
L203	1-408-602-31	INDUCTOR 8.2UH	
L205	1-408-591-11	INDUCTOR 1UH	
L206	1-535-303-00	LEAD, JUMPER (5.0MM)	
L207	1-408-591-11	INDUCTOR 1UH	
L401	1-410-993-42	INDUCTOR 1UH	
L403	1-410-993-42	INDUCTOR 1UH	
L404	1-410-993-42	INDUCTOR 1UH	
L405	1-535-303-00	LEAD, JUMPER (5.0MM)	
L406	1-535-303-00	LEAD, JUMPER (5.0MM)	
L410	1-216-025-11	RES-CHIP 100 5% 1/10W	
L430	1-412-002-31	INDUCTOR 4.7UH	
L446	1-216-295-91	SHORT CHIP 0	
L448	1-216-295-91	SHORT CHIP 0	
L501	1-414-187-11	INDUCTOR 47UH	
L502	1-412-529-11	INDUCTOR 22UH	
L503	1-412-521-31	INDUCTOR 4.7UH	
L504	1-535-303-00	LEAD, JUMPER (5.0MM)	
L505	1-412-542-41	INDUCTOR 270UH	
L507	1-412-533-21	INDUCTOR 47UH	
L532	1-412-553-11	INDUCTOR 3.3MH	
L533	1-406-989-21	INDUCTOR 10MH	
L534	1-216-025-11	RES-CHIP 100 5% 1/10W	
L535	1-419-633-21	INDUCTOR 10MH	
L601	1-408-603-31	INDUCTOR 10UH	
L602	1-408-611-31	INDUCTOR 47UH	
L603	1-412-523-41	INDUCTOR 6.8UH	
L1201	1-535-303-00	LEAD, JUMPER (5.0MM)	
L1203	1-535-303-00	LEAD, JUMPER (5.0MM)	
		< PHOTOCOUPLER >	
PH601 ⚠	8-749-010-64	PHOTO COUPLER PC123F2	
		< PROTECTOR MODULE >	
PS1201 ⚠	1-533-597-31	IC LINK 5A 90V	
		< TRANSISTOR >	
Q002	8-729-900-53	TRANSISTOR DTC114EK	
Q013	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R	
Q049	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q202	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R	
Q203	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R	
Q212	8-729-422-33	TRANSISTOR 2SD601A-Q-TX	
Q401	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R	
Q409	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R	
Q411	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R	
Q532	8-729-053-33	TRANSISTOR IRF614-037	
Q533	8-729-049-08	TRANSISTOR BU2515DX-127	
Q535	8-729-053-33	TRANSISTOR IRF614-037	
Q576	8-729-422-33	TRANSISTOR 2SD601A-Q-TX	
Q601	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R	
Q602	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q603	8-729-037-17	TRANSISTOR KRA104M-AT	
Q604	8-729-036-60	TRANSISTOR KRC104M-AT	
Q606	8-729-053-36	TRANSISTOR 2SK2640-01MR-F122	

REF.NO.	PART.NO	DESCRIPTION			REMARK
Q607	8-729-053-36	TRANSISTOR 2SK2640-01MR-F122			
Q608	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q609	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q1230	8-729-027-56	TRANSISTOR DTC143TKA-T146			
Q1231	8-729-027-56	TRANSISTOR DTC143TKA-T146			
Q1232	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q1233	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			

< RESISTOR >

REF.NO.	PART.NO	DESCRIPTION			REMARK
JR4	1-216-295-91	SHORT CHIP	0		
JR5	1-216-295-91	SHORT CHIP	0		
JR7	1-216-295-91	SHORT CHIP	0		
JR9	1-216-295-91	SHORT CHIP	0		
JR10	1-216-295-91	SHORT CHIP	0		
JR16	1-216-296-11	SHORT CHIP	0		
JR17	1-216-295-91	SHORT CHIP	0		
JR105	1-216-295-91	SHORT CHIP	0		
JR204	1-216-296-11	SHORT CHIP	0		
JR206	1-216-295-91	SHORT CHIP	0		
JR208	1-216-295-91	SHORT CHIP	0		
JR209	1-216-295-91	SHORT CHIP	0		
JR210	1-216-295-91	SHORT CHIP	0		
JR211	1-216-296-11	SHORT CHIP	0		
JR213	1-216-295-91	SHORT CHIP	0		
JR401	1-216-295-91	SHORT CHIP	0		
JR418	1-216-296-11	SHORT CHIP	0		
JR423	1-216-296-11	SHORT CHIP	0		
JR505	1-216-295-91	SHORT CHIP	0		
JR506	1-216-296-11	SHORT CHIP	0		
JR601	1-216-295-91	SHORT CHIP	0		
JR609	1-216-295-91	SHORT CHIP	0		
JR610	1-216-295-91	SHORT CHIP	0		
R003	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R004	1-216-033-00	RES-CHIP	220	5%	1/10W
R005	1-216-041-00	RES-CHIP	470	5%	1/10W
R006	1-216-025-11	RES-CHIP	100	5%	1/10W
R007	1-216-025-11	RES-CHIP	100	5%	1/10W
R008	1-216-025-11	RES-CHIP	100	5%	1/10W
R009	1-216-049-11	RES-CHIP	1K	5%	1/10W
R010	1-216-049-11	RES-CHIP	1K	5%	1/10W
R011	1-216-295-91	SHORT CHIP	0		
R012	1-216-121-11	RES-CHIP	1M	5%	1/10W
R014	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R017	1-216-025-11	RES-CHIP	100	5%	1/10W
R018	1-208-820-11	METAL CHIP	39K	0.5%	1/10W
R020	1-216-077-91	RES-CHIP	15K	5%	1/10W
R023	1-216-035-00	RES-CHIP	270	5%	1/10W
R024	1-216-025-11	RES-CHIP	100	5%	1/10W
R025	1-216-025-11	RES-CHIP	100	5%	1/10W
R026	1-216-025-11	RES-CHIP	100	5%	1/10W
R027	1-216-025-11	RES-CHIP	100	5%	1/10W
R028	1-216-025-11	RES-CHIP	100	5%	1/10W
R029	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R030	1-216-821-11	METAL CHIP	1K	5%	1/10W
R031	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R032	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R033	1-216-073-91	RES-CHIP	10K	5%	1/10W
R034	1-216-129-00	RES-CHIP	2.2M	5%	1/10W
R035	1-216-101-00	RES-CHIP	150K	5%	1/10W
R036	1-216-083-00	RES-CHIP	27K	5%	1/10W
R039	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R040	1-216-033-00	RES-CHIP	220	5%	1/10W
R041	1-216-025-11	RES-CHIP	100	5%	1/10W
R042	1-216-025-11	RES-CHIP	100	5%	1/10W
R044	1-216-073-91	RES-CHIP	10K	5%	1/10W
R045	1-216-129-00	RES-CHIP	2.2M	5%	1/10W
R046	1-216-025-11	RES-CHIP	100	5%	1/10W
R047	1-216-025-11	RES-CHIP	100	5%	1/10W
R048	1-216-073-91	RES-CHIP	10K	5%	1/10W
R049	1-216-049-11	RES-CHIP	1K	5%	1/10W
R050	1-216-025-11	RES-CHIP	100	5%	1/10W
R051	1-216-295-91	SHORT CHIP	0		
R052	1-216-295-91	SHORT CHIP	0		
R055	1-216-025-11	RES-CHIP	100	5%	1/10W
R056	1-216-081-00	RES-CHIP	22K	5%	1/10W
R060	1-216-025-11	RES-CHIP	100	5%	1/10W
R061	1-216-025-11	RES-CHIP	100	5%	1/10W
R070	1-216-025-11	RES-CHIP	100	5%	1/10W
R071	1-216-049-11	RES-CHIP	1K	5%	1/10W
R072	1-127-715-91	CERAMIC CHIP	0.22UF	10%	16V
R073	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R074	1-216-073-91	RES-CHIP	10K	5%	1/10W
R090	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R091	1-216-081-00	RES-CHIP	22K	5%	1/10W
R092	1-216-073-91	RES-CHIP	10K	5%	1/10W
R094	1-216-025-11	RES-CHIP	100	5%	1/10W
R095	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R096	1-216-073-91	RES-CHIP	10K	5%	1/10W
R101	1-216-093-91	RES-CHIP	68K	5%	1/10W
R102	1-216-097-11	RES-CHIP	100K	5%	1/10W
R103	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R105	1-414-813-11	FERRITE	0UH		
R107	1-216-025-11	RES-CHIP	100	5%	1/10W
R108	1-216-025-11	RES-CHIP	100	5%	1/10W
R201	1-216-025-11	RES-CHIP	100	5%	1/10W
R202	1-216-085-91	RES-CHIP	33K	5%	1/10W
R203	1-216-025-11	RES-CHIP	100	5%	1/10W
R211	1-216-081-00	RES-CHIP	22K	5%	1/10W
R212	1-216-069-00	RES-CHIP	6.8K	5%	1/10W

REF.NO.	PART.NO	DESCRIPTION			REMARK
R213	1-216-081-00	RES-CHIP	22K	5%	1/10W
R214	1-216-295-91	SHORT CHIP	0		
R215	1-216-037-00	RES-CHIP	330	5%	1/10W
R216	1-216-097-11	RES-CHIP	100K	5%	1/10W
R217	1-216-073-91	RES-CHIP	10K	5%	1/10W
R220	1-216-017-91	RES-CHIP	47	5%	1/10W
R221	1-216-190-00	RES-CHIP	470	5%	1/8W
R232	1-216-025-11	RES-CHIP	100	5%	1/10W
R233	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R234	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R235	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R236	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R238	1-216-025-11	RES-CHIP	100	5%	1/10W
R246	1-260-107-11	CARBON	4.7K	5%	1/2W
R248	1-249-429-11	CARBON	10K	5%	1/4W
R249	1-216-097-11	RES-CHIP	100K	5%	1/10W
R250	1-216-081-00	RES-CHIP	22K	5%	1/10W
R251	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R252	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R253	1-216-025-11	RES-CHIP	100	5%	1/10W
R254	1-216-025-11	RES-CHIP	100	5%	1/10W
R401	1-410-993-42	INDUCTOR	1UH		
R402	1-216-041-00	RES-CHIP	470	5%	1/10W
R403	1-216-113-00	RES-CHIP	470K	5%	1/10W
R404	1-216-113-00	RES-CHIP	470K	5%	1/10W
R405	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R406	1-216-296-11	SHORT CHIP	0		
R407	1-216-022-00	RES-CHIP	75	5%	1/10W
R408	1-216-022-00	RES-CHIP	75	5%	1/10W
R409	1-216-025-11	RES-CHIP	100	5%	1/10W
R410	1-216-025-11	RES-CHIP	100	5%	1/10W
R411	1-216-022-00	RES-CHIP	75	5%	1/10W
R412	1-216-025-11	RES-CHIP	100	5%	1/10W
R413	1-216-113-00	RES-CHIP	470K	5%	1/10W
R414	1-216-022-00	RES-CHIP	75	5%	1/10W
R415	1-216-022-00	RES-CHIP	75	5%	1/10W
R416	1-216-027-00	RES-CHIP	120	5%	1/10W
R417	1-216-113-00	RES-CHIP	470K	5%	1/10W
R418	1-216-113-00	RES-CHIP	470K	5%	1/10W
R419	1-216-022-00	RES-CHIP	75	5%	1/10W
R420	1-216-073-91	RES-CHIP	10K	5%	1/10W
R421	1-216-049-11	RES-CHIP	1K	5%	1/10W
R422	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R423	1-216-113-00	RES-CHIP	470K	5%	1/10W
R424	1-216-113-00	RES-CHIP	470K	5%	1/10W
R425	1-216-085-91	RES-CHIP	33K	5%	1/10W
R426	1-216-073-91	RES-CHIP	10K	5%	1/10W
R427	1-216-113-00	RES-CHIP	470K	5%	1/10W
R428	1-216-073-91	RES-CHIP	10K	5%	1/10W
R429	1-216-089-91	RES-CHIP	47K	5%	1/10W
R430	1-216-073-91	RES-CHIP	10K	5%	1/10W
R431	1-216-073-91	RES-CHIP	10K	5%	1/10W
R433	1-216-073-91	RES-CHIP	10K	5%	1/10W
R434	1-216-073-91	RES-CHIP	10K	5%	1/10W
R435	1-216-295-91	SHORT CHIP	0		
R438	1-216-022-00	RES-CHIP	75	5%	1/10W
R440	1-216-049-11	RES-CHIP	1K	5%	1/10W
R441	1-216-051-00	RES-CHIP	1.2K	5%	1/10W
R442	1-216-085-91	RES-CHIP	33K	5%	1/10W
R443	1-216-073-91	RES-CHIP	10K	5%	1/10W
R444	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R445	1-216-022-00	RES-CHIP	75	5%	1/10W
R446	1-216-113-00	RES-CHIP	470K	5%	1/10W
R447	1-216-295-91	SHORT CHIP	0		
R448	1-216-113-00	RES-CHIP	470K	5%	1/10W
R449	1-216-295-91	SHORT CHIP	0		
R450	1-216-041-00	RES-CHIP	470	5%	1/10W
R451	1-216-041-00	RES-CHIP	470	5%	1/10W
R453	1-216-171-00	RES-CHIP	75	5%	1/8W
R454	1-216-001-00	RES-CHIP	10	5%	1/10W
R460	1-216-049-11	RES-CHIP	1K	5%	1/10W
R461	1-216-022-00	RES-CHIP	75	5%	1/10W
R462	1-216-178-00	RES-CHIP	150	5%	1/8W
R500	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R501	1-216-091-00	RES-CHIP	56K	5%	1/10W
R502	1-216-073-91	RES-CHIP	10K	5%	1/10W
R503	1-215-888-00	METAL OXIDE	220	5%	2W
R504	1-249-385-11	CARBON	2.2	5%	1/4W
R505	1-218-867-11	METAL CHIP	6.8K	0.5%	1/10W
R506	1-216-665-11	METAL CHIP	3.9K	0.5%	1/10W
R507	1-216-349-00	METAL OXIDE	1	5%	1W
R508	1-218-869-11	METAL CHIP	8.2K	0.5%	1/10W
R509	1-216-665-11	METAL CHIP	3.9K	0.5%	1/10W
R510	1-216-113-00	RES-CHIP	470K	5%	1/10W
R512	1-249-382-11	CARBON	1.2	5%	1/4W
R514	1-249-377-11	CARBON	0.47	5%	1/4W
R515	1-249-377-11	CARBON	0.47	5%	1/4W
R520	1-215-884-11	METAL OXIDE	47	5%	2W
R522	1-216-097-11	RES-CHIP	100K	5%	1/10W
R523	1-216-121-11	RES-CHIP	1M	5%	1/10W
R524	1-216-075-00	RES-CHIP	12K	5%	1/10W
R525	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R526	1-216-089-91	RES-CHIP	47K	5%	1/10W
R527	1-216-077-91	RES-CHIP	15K	5%	1/10W
R528	1-216-097-11	RES-CHIP	100K	5%	1/10W
R529	1-216-073-91	RES-CHIP	10K	5%	1/10W
R530	1-216-085-91	RES-CHIP	33K	5%	1/10W
R531	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R532	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R533	1-216-077-91	RES-CHIP	15K	5%	1/10W

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

REF.NO.	PART.NO	DESCRIPTION			REMARK
R536	1-216-025-11	RES-CHIP	100	5%	1/10W
R538	1-535-143-71	LEAD, JUMPER (7.5MM)			
R539	1-535-143-41	LEAD, JUMPER (17.5MM)			
R543	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R544	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R547	1-535-143-71	LEAD, JUMPER (7.5MM)			
R548	1-249-387-11	CARBON	3.3	5%	1/4W
R549	1-216-361-21	METAL OXIDE	0.22	5%	2W
R550	1-215-880-00	METAL OXIDE	10	5%	2W
R551	1-215-871-11	METAL OXIDE	2.2K	5%	1W
R552	1-216-848-11	METAL CHIP	180K	5%	1/10W
R553	1-249-381-11	CARBON	1	5%	1/4W
R555	1-216-059-00	RES-CHIP	2.7K	5%	1/10W
R556	1-215-916-00	METAL OXIDE	680	5%	3W
R557	1-216-067-00	RES-CHIP	5.6K	5%	1/10W
R558	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R589	1-216-097-11	RES-CHIP	100K	5%	1/10W
R590	1-216-081-00	RES-CHIP	22K	5%	1/10W
R591	1-215-892-11	METAL OXIDE	1K	5%	2W
R595	1-249-377-11	CARBON	0.47	5%	1/4W
R602	1-202-961-11	CEMENTED	1.8	5%	10W
R603 ⚠	1-202-933-61	FUSIBLE	0.1	10%	1/2W
R605	1-216-049-11	RES-CHIP	1K	5%	1/10W
R608	1-216-073-91	RES-CHIP	10K	5%	1/10W
R609	1-218-873-11	METAL CHIP	12K	0.5%	1/10W
R610	1-215-481-00	METAL	330K	1%	1/4W
R611	1-216-059-00	RES-CHIP	2.7K	5%	1/10W
R612	1-249-429-11	CARBON	10K	5%	1/4W
R613 ⚠	1-219-720-91	METAL	10M	5%	1W
R615	1-215-385-00	METAL	33	1%	1/4W
R616	1-216-101-00	RES-CHIP	150K	5%	1/10W
R617	1-216-099-00	RES-CHIP	120K	5%	1/10W
R619	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R621	1-216-113-00	RES-CHIP	470K	5%	1/10W
R622	1-216-073-91	RES-CHIP	10K	5%	1/10W
R623	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R624	1-216-001-00	RES-CHIP	10	5%	1/10W
R625	1-216-073-91	RES-CHIP	10K	5%	1/10W
R627	1-249-389-11	CARBON	4.7	5%	1/4W
R628	1-247-791-91	CARBON	22	5%	1/4W
R629	1-216-073-91	RES-CHIP	10K	5%	1/10W
R632	1-249-417-11	CARBON	1K	5%	1/4W
R633	1-215-481-00	METAL	330K	1%	1/4W
R634	1-217-625-00	METAL	0.05	10%	2W
R635	1-260-300-11	CARBON	4.7	5%	1/2W
R636	1-249-413-11	CARBON	470	5%	1/4W
R637	1-216-041-00	RES-CHIP	470	5%	1/10W
R639	1-208-814-91	METAL CHIP	22K	0.5%	1/10W
R640	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R641	1-216-097-11	RES-CHIP	100K	5%	1/10W

REF.NO.	PART.NO	DESCRIPTION			REMARK
R642	1-249-405-11	CARBON	100	5%	1/4W
R643	1-216-089-91	RES-CHIP	47K	5%	1/10W
R645	1-216-073-91	RES-CHIP	10K	5%	1/10W
R647	1-216-049-11	RES-CHIP	1K	5%	1/10W
R648	1-215-481-00	METAL	330K	1%	1/4W
R649	1-208-805-11	METAL CHIP	9.1K	0.5%	1/10W
R650	1-208-758-11	METAL CHIP	100	0.5%	1/10W
R651 ⚠	1-220-926-11	FUSIBLE	0.47	10%	1/2W
R654	1-216-001-00	RES-CHIP	10	5%	1/10W
R656	1-216-365-00	METAL OXIDE	0.47	5%	2W
R658 ⚠	1-202-961-11	CEMENTED	1.8	5%	10W
R660	1-247-807-31	CARBON	100	5%	1/4W
R1202	1-216-073-91	RES-CHIP	10K	5%	1/10W
R1203	1-216-049-11	RES-CHIP	1K	5%	1/10W
R1207	1-216-077-91	RES-CHIP	15K	5%	1/10W
R1210	1-216-077-91	RES-CHIP	15K	5%	1/10W
R1213	1-216-049-11	RES-CHIP	1K	5%	1/10W
R1214	1-216-049-11	RES-CHIP	1K	5%	1/10W
R1215	1-216-049-11	RES-CHIP	1K	5%	1/10W
R1216	1-216-025-11	RES-CHIP	100	5%	1/10W
R1230	1-216-041-00	RES-CHIP	470	5%	1/10W
R1231	1-216-113-00	RES-CHIP	470K	5%	1/10W
R1232	1-216-041-00	RES-CHIP	470	5%	1/10W
R1233	1-216-113-00	RES-CHIP	470K	5%	1/10W
R1235	1-216-073-91	RES-CHIP	10K	5%	1/10W
R1236	1-216-073-91	RES-CHIP	10K	5%	1/10W

< RELAY >

REF.NO.	PART.NO	DESCRIPTION
RY601 ⚠	1-755-388-11	RELAY (AC POWER)

< SWITCH >

REF.NO.	PART.NO	DESCRIPTION
SW532	1-572-707-11	SWITCH, LEVER

< TRANSFORMER >

REF.NO.	PART.NO	DESCRIPTION
T511 ⚠	1-453-308-41	TRANSFORMER ASSY, FLYBACK NX-4521//Z2B4
T531	1-437-210-11	TRANSFORMER, HORIZONTAL DRIVE
T532	1-426-981-91	TRANSFORMER, FERRITE (PMT)
T602 ⚠	1-431-732-31	TRANSFORMER, CONVERTER (SRT)
T603 ⚠	1-435-976-12	TRANSFORMER, CONVERTER (PIT)

< THERMISTOR >

REF.NO.	PART.NO	DESCRIPTION
TH601	1-803-586-41	THERMISTOR
THP601 ⚠	1-803-951-11	THERMISTOR, PTC

< CRYSTAL >

REF.NO.	PART.NO	DESCRIPTION
X001	1-578-774-71	VIBRATOR, CRYSTAL
X201	1-760-628-11	VIBRATOR, CRYSTAL

A Board, Variant Parts KD-28DX50

< CAPACITOR >

REF.NO.	PART.NO	DESCRIPTION		REMARK	
C522	1-136-170-00	FILM	0.27UF	5.00%	50V
C536	1-115-521-11	FILM	0.82UF	5.00%	250V
C539	1-111-230-11	ELECT	1UF	20.00%	160V
C542	1-162-115-00	CERAMIC	330PF	10.00%	2KV
C547	1-115-521-11	FILM	0.82UF	5.00%	250V
C555	1-117-652-11	FILM	22000PF	3.00%	1.2KV
C570	1-126-961-11	ELECT	2.2UF	20.00%	50V
C641	1-115-758-11	ELECT	470UF	20.00%	16V

< CONNECTOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
CN503	NOT FITTED		

< DIODE >

REF.NO.	PART.NO	DESCRIPTION	REMARK
D638	8-719-083-92	DIODE YG802C09RF122	

< TRANSISTOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
Q570	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R	

< RESISTOR >

REF.NO.	PART.NO	DESCRIPTION			REMARK
JR101	NOT FITTED				
R022	1-216-089-91	METAL CHIP	47K	5%	1/10W
R053	1-216-077-91	RES-CHIP	15K	5%	1/10W
R455	1-216-295-91	SHORT CHIP	0		
R513	1-216-105-91	RES-CHIP	220K	5%	1/10W
R516	1-214-907-00	METAL	56K	1%	1/2W
R517	1-215-451-00	METAL	18K	1%	1/4W
R518	1-216-059-00	RES-CHIP	2.7K	5%	1/10W
R521	1-216-105-91	RES-CHIP	220K	5%	1/10W
R534	1-216-097-11	RES-CHIP	100K	5%	1/10W
R535	1-216-099-00	RES-CHIP	120K	5%	1/10W
R540	1-212-970-00	FUSIBLE	33	5%	1/2W
R546	1-216-480-11	METAL OXIDE	820	5%	3W
R568	1-216-916-00	METAL OXIDE	680	5%	3W
R569	1-216-073-91	RES-CHIP	10K	5%	1/10W
R570	1-216-049-11	RES-CHIP	1K	5%	1/10W
R571	1-216-035-00	RES-CHIP	270	5%	1/10W
R572	1-216-039-00	RES CHIP	390	5%	1/10W
R583	1-216-073-91	RES-CHIP	10K	5%	1/10W
R600	1-218-837-11	METAL CHIP	390	0.5%	1/10W
R601	1-218-839-11	METAL CHIP	470	0.5%	1/10W

< TRANSFORMER >

REF.NO.	PART.NO	DESCRIPTION	REMARK
T533	1-433-980-12	TRANSFORMER, HORIZONTAL LINEAR	

A Board, Variant Parts KD-32DX50

< CAPACITOR >

REF.NO.	PART.NO	DESCRIPTION		REMARK	
C522	NOT FITTED				
C536	1-115-522-11	FILM	1UF	5.00%	250V
C539	1-107-667-11	ELECT	2.2UF	20.00%	400V
C542	1-161-754-00	CERAMIC	0.001UF	10.00%	2KV
C547	1-109-844-11	FILM	0.68UF	5.00%	400V
C555	1-127-717-11	FILM	19000PF	3%	1.2KV
C570	NOT FITTED				
C641	1-115-785-11	ELECT	470UF	20.00%	25V

< CONNECTOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
CN503	*1-816-974-51	PLUG, CONNECTOR 3P	

< DIODE >

REF.NO.	PART.NO	DESCRIPTION	REMARK
D638	6-500-069-01	DIODE FMW-2109LF654	

< TRANSISTOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
Q570	NOT FITTED		

< RESISTOR >

REF.NO.	PART.NO	DESCRIPTION			REMARK
JR101	1-216-295-91	SHORT CHIP	0		
R022	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R053	1-216-095-00	RES-CHIP	82K	5%	1/10W
R455	1-412-002-31	INDUCTOR	4.7UH		
R513	NOT FITTED				
R516	1-214-905-11	METAL	47K	1%	1/2W
R517	1-215-453-00	METAL	22K	1%	1/4W
R518	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R521	NOT FITTED				
R534	1-216-111-00	RES-CHIP	390K	5%	1/10W
R535	1-216-105-91	RES-CHIP	220K	5%	1/10W
R540	1-212-974-00	FUSIBLE	47	5%	1/2W
R546	1-215-917-11	METAL OXIDE	1K	5%	3W
R568	1-216-480-11	METAL OXIDE	820	5%	3W
R569	NOT FITTED				
R570	NOT FITTED				
R571	NOT FITTED				
R572	NOT FITTED				
R583	1-216-077-91	RES-CHIP	15K	5%	1/10W
R600	1-218-825-11	METAL CHIP	120	0.5%	1/10W
R601	1-218-843-11	METAL CHIP	680	0.5%	1/10W

< TRANSFORMER >

REF.NO.	PART.NO	DESCRIPTION	REMARK
T533	1-429-306-11	TRANSFORMER, HORIZONTAL LINEAR	

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

* A-1405-799-A H4 Board, Complete

REF.NO.	PART.NO	DESCRIPTION	REMARK
	4-205-711-01	HOLDER, LED	

< CAPACITOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
C7150	1-126-969-11	ELECT 220UF	20.00% 50V

< CONNECTOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
CN7150	*1-816-978-51	PLUG, CONNECTOR 7P	

< DIODE >

REF.NO.	PART.NO	DESCRIPTION	REMARK
D7150	8-719-081-56	DIODE L-59SRSGC-CC	
D7152	8-719-109-89	DIODE RD5.6ESB2	

< IC >

REF.NO.	PART.NO	DESCRIPTION	REMARK
IC7150	8-749-014-59	IC TSOP1740KS1	

< TRANSISTOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
Q7150	8-729-027-38	TRANSISTOR DTA144EKA-T146	
Q7151	8-729-900-53	TRANSISTOR DTC114EK	

< RESISTOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
R7150	1-216-813-11	METAL CHIP 220 5%	1/10W
R7151	1-216-813-11	METAL CHIP 220 5%	1/10W
R7152	1-216-829-11	METAL CHIP 4.7K 5%	1/10W
R7153	1-216-829-11	METAL CHIP 4.7K 5%	1/10W
R7154	1-216-824-11	METAL CHIP 1.8K 5%	1/10W
R7155	1-216-809-11	METAL CHIP 100 5%	1/10W
R7156	1-216-815-11	METAL CHIP 330 5%	1/10W

* A-1405-800-A H7 Board, Complete

< CAPACITOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
C906	1-126-960-11	ELECT 1UF	20.00% 50V
C907	1-126-960-11	ELECT 1UF	20.00% 50V
C908	1-102-106-00	CERAMIC 100PF	10.00% 50V
C909	1-102-106-00	CERAMIC 100PF	10.00% 50V

< CONNECTOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
CN906	*1-564-524-11	PLUG, CONNECTOR 9P	
CN908	*1-564-521-11	PLUG, CONNECTOR 6P	

< DIODE >

REF.NO.	PART.NO	DESCRIPTION	REMARK
D902	8-719-929-15	DIODE HZS9.1NB2	
D903	8-719-929-15	DIODE HZS9.1NB2	
D904	8-719-109-97	DIODE RD6.8ESB2	
D905	8-719-109-97	DIODE RD6.8ESB2	
D908	8-719-923-60	DIODE MTZJ-T-77-9.1A	

< SOCKET >

REF.NO.	PART.NO	DESCRIPTION	REMARK
J900	1-750-264-11	JACK	
J901	1-794-442-11	TERMINAL BLOCK (LIGHT ANGLE),S	

< COIL >

REF.NO.	PART.NO	DESCRIPTION	REMARK
L900	1-535-303-00	LEAD, JUMPER (5.0MM)	
L901	1-535-303-00	LEAD, JUMPER (5.0MM)	
L902	1-408-603-31	INDUCTOR 10UH	
L903	1-408-603-31	INDUCTOR 10UH	
L904	1-410-119-11	INDUCTOR 1MH	

< RESISTOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
R901	1-247-843-11	CARBON 3.3K 5%	1/4W
R902	1-249-431-11	CARBON 15K 5%	1/4W
R903	1-249-406-11	CARBON 120 5%	1/4W
R904	1-249-406-11	CARBON 120 5%	1/4W
R909	1-247-895-91	CARBON 470K 5%	1/4W
R910	1-247-895-91	CARBON 470K 5%	1/4W
R911	1-535-303-00	LEAD, JUMPER (5.0MM)	
R912	1-249-419-11	CARBON 1.5K 5%	1/4W
R913	1-249-427-11	CARBON 6.8K 5%	1/4W
R914	1-249-429-11	CARBON 10K 5%	1/4W
R915	1-249-406-11	CARBON 120 5%	1/4W
R916	1-249-406-11	CARBON 120 5%	1/4W
R917	1-247-807-31	CARBON 100 5%	1/4W
R918	1-247-807-31	CARBON 100 5%	1/4W

< SWITCH >

REF.NO.	PART.NO	DESCRIPTION	REMARK
S900	1-771-947-11	SWITCH, TACTILE	
S901	1-771-947-11	SWITCH, TACTILE	
S902	1-771-947-11	SWITCH, TACTILE	

* A-1405-801-A F7 Board, Complete

< CONNECTOR >

REF.NO.	PART.NO	DESCRIPTION	REMARK
CN7601 ⚠	*1-695-292-11	PIN, CONNECTOR (POWER)	
CN7602 ⚠	*1-580-844-11	PIN, CONNECTOR (POWER)	

< SWITCH >

REF.NO.	PART.NO	DESCRIPTION	REMARK
S7601 ⚠	1-571-433-21	SWITCH, PUSH (AC POWER)	

MISCELLANEOUS

REF.NO.	PART.NO	DESCRIPTION	REMARK
⚠	*1-424-733-11	COIL, PFC CHOKE 65MMH	
⚠	*1-776-204-11	CORD, POWER (FILTER)	
⚠	1-453-308-41	TRANSFORMER ASSY, FLYBACK (NX-4521//Z2B4)	
	1-693-557-14	FRONTEND (TUNER +IF)	
	8-598-626-00	TUNER UNIT, DIGITAL BTD-DU606	
	1-529-408-11	SPEAKER (4.2X24CM)	
⚠	*1-571-433-21	SWITCH, PUSH (AC POWER)	
⚠	8-451-521-31	DEFLECTION YOKE (Y28RVC3-L2)	(KD-28DX50)
⚠	1-451-520-31	DEFLECTION YOKE (Y32RVC3)	(KD-32DX50)
	1-452-896-11	COIL, NA ROTATION (RT200)	
⚠	8-453-011-11	NECK ASSY, (NA299-M)	
⚠	1-416-466-21	COIL, DEMAGNETIC (KD-28DX50)	
⚠	1-416-769-11	COIL, DEMAGNETIC (KD-32DX50)	
⚠	1-251-946-11	CAP ASSY, HIGH-VOLTAGE	
⚠	8-735-099-05	PICTURE TUBE (W66LLX060X)	(KD-28DX50)
⚠	8-735-079-05	PICTURE TUBE (W76LLX060X)	(KD-32DX50)
	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM Ø	
	1-425-032-00	MAGNET, DISK; 10MM Ø	

ACCESSORIES AND PACKAGING MATERIALS

	*4-029-168-01	BAG PROTECTION	
	*4-205-234-01	CUSHION LOWER (KD-28DX50)	
	*4-205-226-02	CUSHION LOWER (KD-32DX50)	
	*4-205-235-01	CUSHION UPPER (KD-28DX50)	
	*4-205-227-03	CUSHION UPPER (KD-32DX50)	
	*4-205-229-03	INDIVIDUAL CARTON (KD-28DX50)	
	*4-205-228-06	INDIVIDUAL CARTON (KD-32DX50)	
	4-096-786-11	INSTRUCTION MANUAL (ENGLISH)	

REMOTE COMMANDER

	1-476-697-12	COMMANDER, STANDARD (RM-933)	

TRACE

A new TV Repair Assistance Tool that combines ease of use and powerful PC software tools to allow you to save valuable time during many TV repairs.

RS-232
IR
I²C
SONY-TCSE
TRACE
CTRL
POWER
9V DC
POWER

The TRACE interface connects to the PC's serial port. It provides connection to the TV's I^{2}C bus and can be provided with an InfraRed transmitter (optional).

The interface is powered by a standard 9 V PP3 battery for portable use, and can also be powered by an external 9V/25mA DC power supply.

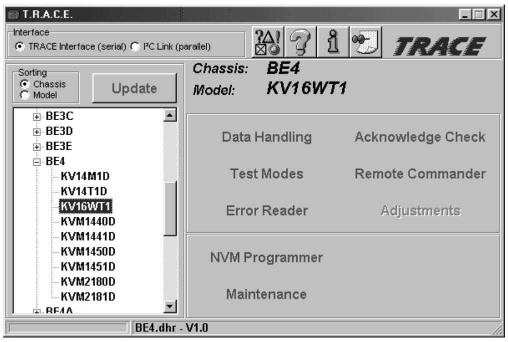
The TRACE software that is supplied with the interface allows you to:

- Read, restore and compare NVM contents via the I^{2}C bus
- Acknowledge check of all I^{2}C devices in the TV set
- Read Error Codes (emulation of the Error Reader tool)

With the optional IR Add-on kit, the following features can be added:

- Remote Commander emulation
- User programmable Functional Check through Infrared
- Fast and documented Test Mode setting of all Sony TV chassis

Additional features such as Adjustments and Troubleshooting are available in chassis-dependent software modules. Please contact your local Sony Service organisation for the latest information.


T.R.A.C.E.
TRACE
Update
BE3C
BE3D
BE3E
BE4
KV14M1D
KV14T1D
KV16WT1
KVM1440D
KVM1441D
KVM1450D
KVM1451D
KVM2180D
KVM2181D
BE4A
Data Handling
Acknowledge Check
Test Modes
Remote Commander
Error Reader
Adjustments
NVM Programmer
Maintenance
BE4.dhr - V1.0

Interface: ● TRACE Interface (serial) ○ I²C Link (parallel)

Sorting: ● Chassis ○ Model

Chassis: BE4

Model: KV16WT1

Note: For workshops already using the existing I^{2}C Link parallel port interface (9-948-320-30), this software can be used as well, replacing the TV Data Handling software (9-948-340-50), but Error Reader and IR functions can only be accessed with the TRACE interface.

Partnumbers:	TRACE Starter Kit (TRACE interface + software):	9-948-320-70
	TRACE Software (for users of the I^{2}C Link interface):	9-948-340-80
	TRACE IR Add-on (IR interface + Remote Commander software):	9-948-320-80

PC requirements: IBM-compatible PC with operating system Windows95, Windows98, or WindowsNT*.

* WindowsNT only supported with TRACE interface

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